FAA AviationNews
AVIATION SAFETY FROM COVER TO COVER
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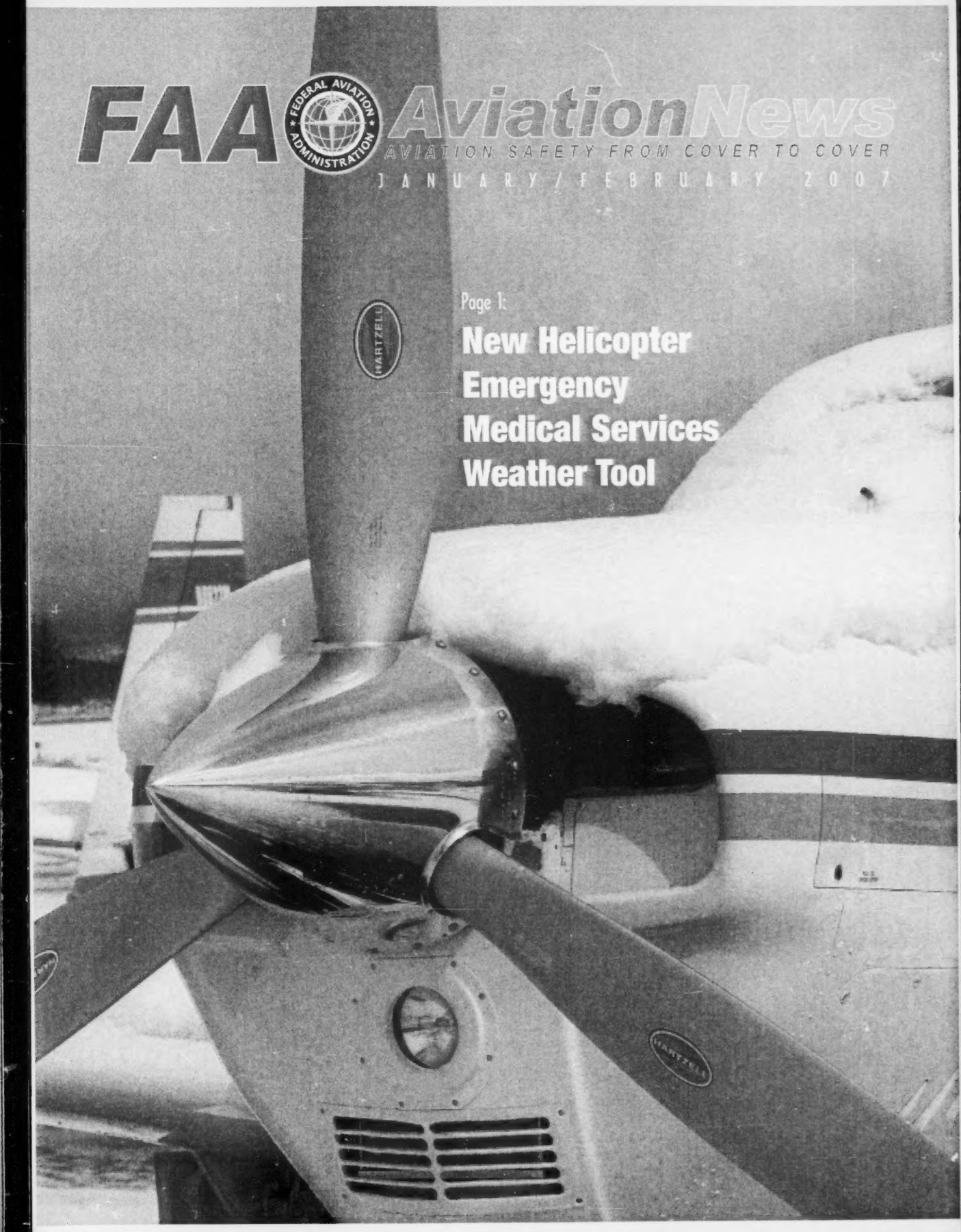

Page 1:

New Helicopter Emergency Medical Services Weather Tool

U.S. Department
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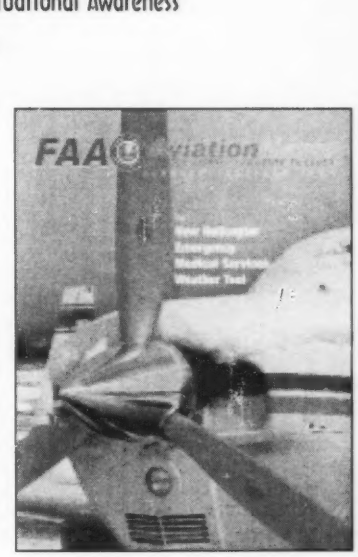

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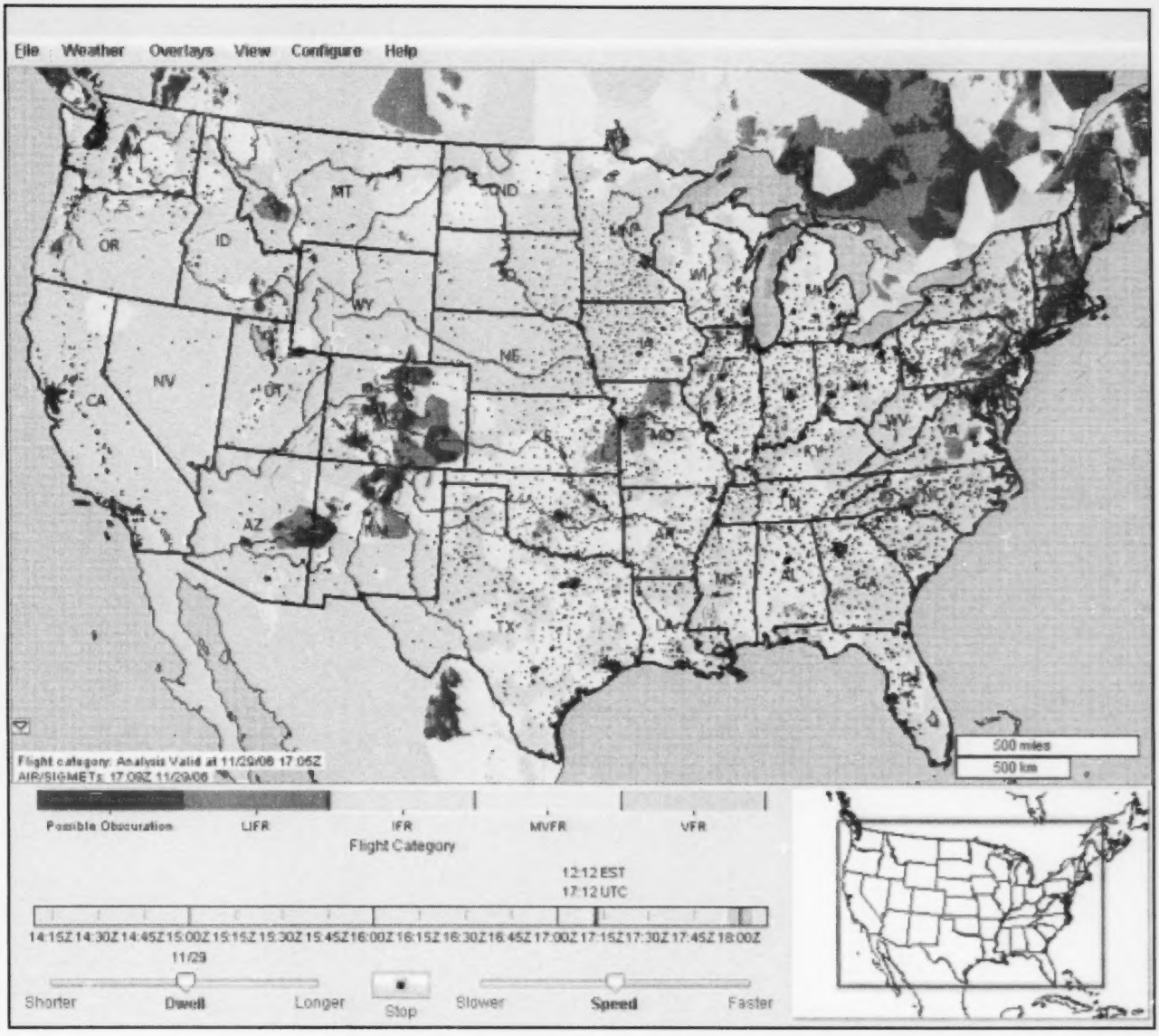


New Helicopter Emergency Medical Services Weather Tool

by Larry Buehler

A review of the commercial Helicopter Emergency Medical Services (HEMS) accidents from January 1998 through December 2004 revealed a need for more detailed flight planning. While this study concerned only HEMS accidents, flight planning information sources are relevant to every facet of aviation. One of these sources is the Aviation Digital Data Service (ADDS), which was introduced in 1997 as an experimental digital data program that would contain weather observations and forecasts important to the aviation community and would be available via the Internet.

The ADDS has added a new tool to help HEMS operators make better weather related go/no-go decisions. This system is currently in the experi-

mental phase and, as such, there are restrictions placed on its use for flight planning. While The ADDS HEMS Weather Tool is intended for HEMS operators, it is available to the public and may prove useful for many other segments of the aviation community.

Every one knows that HEMS operate in a very demanding environment. They provide an invaluable service to the public by providing crucial, safe, and efficient transportation of critically ill and injured patients to medical care facilities. While the contribution of HEMS is profound as a component of the nation's medical infrastructure, from an operational standpoint, it is a commercial aviation activity performed by FAA certificated air carrier operators. Therefore, operations must have the highest level of safety. HEMS operators are generally certified under Title 14 Code of Federal Regulations (14 CFR) part 135 as on-demand air carriers. Legally they operate like a normal charter business even though their role is very different.

The HEMS Weather Summit

In order to prevent controlled flight into terrain (CFIT) and loss of control (LOC) accidents, the FAA, the HEMS industry, and the University Center for Atmospheric Research (UCAR) (which is a consortium of universities) conducted a HEMS Weather Summit in early 2006. One of the conclusions of the summit was that there was an absence of usable ceiling and visibility data between reporting and forecasting stations. Often, HEMS operators conduct entire HEMS flights in the area between such stations, with reliance on off-course stations and area forecasts to make critical flight planning decisions. One of the outputs of this summit was a commitment to provide the HEMS operating community access to information which might support better weather decision making in VFR operations.

Following the weather summit, FAA asked UCAR's Research Applications Laboratory (RAL) to develop a weather tool as a part of the ADDS experimental Web site. This weather tool would provide access to "gridded" ceiling and visibility assessment in areas between Aviation Routine Weather Report (METAR) and Terminal Area Forecast (TAF) reporting/forecasting sites. The ceiling and visibility data are "assessments," meaning they are determinations of the ceiling and visibility that are likely to exist in the grid block based on terrain influences, technical assessments, and observations provided to software forecasting models that automatically generate the graphical product. The user must understand that this weather product is not a report of an observation or a forecast. It is an assessment of the ceiling and visibility at the time chosen by the user and at the location of the grid block(s).

In addition, this product has not completed a rigorous Flight Standards operational suitability assessment. This assessment establishes the product as either a primary weather product that meets all safety and regulatory requirements (e.g., METAR or TAF) or as a supplementary weather product for increased situational awareness. Until that assessment, the product currently is experimental, but highly informational.

The user should be aware that the weather tool derives ceiling and visibility by interpolating the nearest METAR data. This interpolation process, in effect, "stretches" limited-area METAR observations across a broader area between stations accounting for terrain effects on ceiling height. The results are the likely conditions between METAR stations. However, a critical issue is that the reliability of the information generally degrades as distance from a METAR site increases. Thus, users should apply practical judgment when considering the "likely" weather conditions that are remote from a METAR site. To aid in this judgment, the product provides confidence fields that integrate a variety of product quality factors. Accordingly, indications of a "likely" weather condition that indicates a no-go condition should strongly influence the decisions of certificate holders authorized to use this product.

The ADDS HEMS Weather Tool allows the user to identify gridded weather assessments in 5 km by 5 km blocks. The weather data available includes flight category, ceiling, visibility, radar, convection, icing, temperature, relative humidity, and wind. C verlays on the graphical data include wind barbs, METARs, PIREPs, AIRMETs/SIGMETs, TAFs, VORs, state and county boundaries, and a base map of terrain and cultural information.

This data became available November 1, 2006, on the ADDS Experimental Web site at <www.weather.aero/hems>. The site contains a tutorial as well as "frequently asked questions." In addition, you can find a technical report on the performance of this weather tool at <http://www.avmet.com/> under the "Supplementary Weather Products" menu. Taking the tutorial and reviewing the report will help users understand how to use the tool most effectively.

There are some limitations, however. Operators may not use this weather tool in any way to support IFR operations. The only approved use of this weather tool is in VFR operations, and then only in the context of supporting a "no-go" decision. Operators may not use the HEMS Weather Tool as the sole source for decisions to "Go." They may only use established primary products, such as METARs, TAFs, area forecasts, weather depiction charts, prognosis charts, etc., to make both "Go" and "No-Go" decisions. Here are a few examples:

- If primary products, such as METARs, TAFs, and area forecasts, indicate a proposed flight would encounter weather conditions worse than those required by Operations Specification (also known as OpSpec, which is a set or rules or guidelines that apply to part 135 and 121 operators) for VFR operations, and the HEMS Weather Tool indicates that conditions meet OpSpecs minima, an operator cannot use the HEMS Weather Tool to support a "Go" decision not supported by primary products.
- If the primary products indicate

that an operator could complete a flight in conditions at or above the OpSpec minima, and the HEMS Weather Tool indicated weather lower than required along the route of flight, the HEMS Weather Tool can support a "no-go" decision. This is particularly important since many primary products (such as area forecasts) do not have the specificity to identify highly localized low weather conditions. The HEMS Weather Tool can resolve assessments at the 5km by 5km grid level.

The following table reflects the relationship of the HEMS Experimental Weather Tool to primary weather products:

Condition	Primary Weather Products	ADDS HEMS Tool	Decision
1	No-Go	Go	No-Go
2	Go	Go	Go
3	Go	No-Go	No-Go*

* Because the ADDS HEMS Weather Tool is an experimental product, we encourage operators to make a "No-Go" decision when the weather tool indicates ceilings and/or visibilities below OpSpec minimums even when primary products indicate acceptable weather conditions (condition 3).

Table 1.

In cases where the weather tool supports an initial "No-Go" decision, depending on the extent of the area of assessed low ceilings and/or visibilities, it may also provide information which would support re-routing a flight to avoid indicated hazardous ceiling and visibility conditions. In these cases, the primary products, as well as the ADDS HEMS Weather Tool would then both indicate acceptable conditions along the re-routed flight path, meeting the criteria of condition 2 in Table 1.

In some cases, a certificate holder may choose to disregard the ADDS HEMS Tool on the basis of direct observations, pilot reports, or other data. However, should the certificate holder elect to operate when the weather tool indicates unacceptable conditions, knowledge of the weather tool's assessment may increase the pilot's situational awareness and support more timely in-flight decisions to divert or land short if the pilot observes deteriorating conditions in-flight. Delaying such in-flight decisions substantially increases the potential for inadvertent instrument meteorological conditions (IMC) encounters, with the resulting increased risk of a CFIT or LOC accident.

HEMS part 135 certificate holders are encouraged to consider adopting this HEMS Weather Tool into their approved weather program under Operations Spec A010, Aeronautical Weather Data. To obtain approval to use the ADDS HEMS Weather Tool, the certificate holder must provide access to the ADDS HEMS Weather Tool tutorial and the technical performance report to pilots and other personnel, before using the product. Also pilots and other personnel who will use the ADDS HEMS Weather Tool must review these documents.

After reviewing this documentation and establishing the method to accomplish the training, the Part 135 certificate holder may request authorization to use the ADDS HEMS Weather Tool to support VFR flight operations under their OpSpecs. This authorization is accomplished by amending existing OpSpec paragraph A010 through coordination with your Principal Operations Inspector.

After using this weather tool briefly, it is my opinion that it is a major step forward in the presentation of weather information. In the future this HEMS Weather Tool could serve as the basis for a larger scale general aviation version that would be very useful in VFR planning and enhancing situational awareness. Like HEMS operators, GA pilots often fly to areas that lack weather reporting systems. The system also can provide a good overview of possible conditions likely to be encountered along routes with limited reporting points. This visual display allows pilots to rapidly ascertain the likely weather situation at all points along the flight. By presenting the information in graphical form a pilot can clearly see a line where marginal conditions start and how far they might continue. This could help prevent pilots from trying to push their luck as conditions deteriorate. This would be useful not only for HEMS operators, but for any pilot.

As was stated earlier, the HEMS Weather Tool is still experimental and can only be used in a very limited way. But as a pilot you should check it out. While it may not be usable directly today, it can provide an excellent picture of what you can expect to see on your flight. In many cases it could be the only way to get any weather information for the area you're headed to. I think this weather tool could be very useful. Now it's your turn to try it and tell us what you think.

The main source of information on this new ADDS tool is a notice to aviation safety inspectors concerning its use and implementation (Notice N8000.333). Questions, comments, and other feedback concerning this tool may be directed to the Flight Standards Service, Commuter, On Demand, and Training Center Branch, AFS-250, at (202) 267-8166.

Larry Buehler is an aviation safety inspector with the Air Transportation Division's Commuter, On-Demand, and Training Center Branch in Flight Standards Service.

story and photo by
H. Dean Chamberlain

Winter Flight Safety

In preparing for winter flights, all pilots should remember what survival experts have said for years. Pilots should always carry a survival kit appropriate to the conditions along their route of flight and to always dress to be able to walk home in the conditions in or over which they will be flying. The same is true of all passengers onboard. For example, Alaska and Canada have specific survival kit requirements and restrictions for pilots and passengers that must be followed when operating within those areas or within designated areas. Even though the "lower 48" have no such requirement, a winter survival kit may be a good "best practice."

If you are flying from one set of conditions such as a cold, snow-covered area to a warm, sunny beach area or from a beach area to the ski slopes, you need to consider the needs of both areas for yourself and your aircraft. But to give yourself the best chance to survive your trip in case you have to make an off-airport landing, the most important instruction is to always fly your aircraft. A controlled off-airport landing rather than an out of control crash is your most important aircraft survival tool. Then, once you are safely on the ground, you need to think about the following.

The Essential 10

The list of items that some organizations consider the essential 10 items every survival kit should contain is shown in the sidebar on page 7. Once you have the essential 10, you can decide on additional essentials, based upon your local environmental conditions and how much money you want to spend or what other items you may want to carry. Some people will never carry any type of survival kit. Some will carry a very basic kit. Others will be very well-prepared. To best illustrate that point, an Air Force survival expert made an important point at a safety meeting several years ago by asking the question, "Why would you want to carry one of those small reflective type emergency survival blankets when you can carry a real sleeping bag and be warm and comfortable?" I thought he made a good point. Why restrict or limit your comfort if you have the space and load carrying capability to carry what will keep you both alive and comfortable?

Preparedness

Only you can determine how comfortable you want to be in case you have to land off-airport. Then there is the case of some tourists who took a helicopter sight seeing trip over a glacier in Alaska. They had to spend the night on the glacier after the helicopter had to make a precautionary landing. Then the rescue helicopter had problems. I expect it was a chilly, if not a down right cold, night on the glacier for some of the tourists. I wonder how many had thought to carry some extra clothing or some simple survival items in their pockets. How many times have you left the house to go flying without taking a bottle of water or a simple snack with you? The point is, you need to be prepared whenever you leave the comfort of your home to fend for yourself until

you can return there. Some people have written that they had to survive in the wild after an off-airport landing with only what they carried in their pockets. (Their aircraft sank in water with their gear.) Survival may be as simple as not having to eat junk food at the local FBO on a late cross-country flight, or being able to sit out a storm at an unfamiliar airport, or making a precautionary landing along a deserted highway miles from anywhere without undue stress or discomfort.

Is Your Aircraft Ready?

Once you have the items you wouldn't want to be caught dead without, pilots need to think what items their aircraft may need for the local flight conditions. When was the last time you reviewed your aircraft manual for how to prepare your aircraft for winter and your local conditions? Is the recommended grade of oil installed based upon the anticipated local temperatures? If you fly in really cold conditions, are engine baffle plates required or recommended? Has the aircraft heater system been checked? Is your heater safe? If you use an aircraft preheater to warm your engine before you start it, has it been serviced and is it ready and safe to use? Do you remember how to safely operate the preheater? And what about your battery, has it been checked recently? Will it be able to start your engine when the temperature drops? Does your aircraft require any special lubricants in cold weather? If your aircraft has control cables, have they been adjusted for the change in temperature?

Have you reviewed the recommended safe operating procedures for operating on snow or ice covered runways? Do you know the regulations concerning flight in known icing conditions? Do you know the rules for preflighting your aircraft when frost is present? Have you checked your flight manual for any recommended operating procedures for operating on wet runways in freezing conditions? If your aircraft has retractable landing gear, what is the recommended procedures for retracting the wheels in icing conditions? Have you checked with your local aviation maintenance technician for any manufacturer's required or recommended maintenance procedure? And if your aircraft is not equipped for operating in known icing conditions, what is the recommended procedure to follow if you find your aircraft suddenly icing up? If your aircraft is approved for flight into known icing conditions, do you know the recommended operating procedures for your particular anti- or deicing system? Have you read the latest FAA recommended de-icing boot operating procedures? If you have pitot heat, does it work?

Does your aircraft flashlight or flashlights have fresh batteries? After all, the days are shorter and more flying is being done at night. If nothing else, you might need a good flashlight to preflight your aircraft in the dark. Are you night current? Are you night proficient? Are you instrument rated and current?

Have you checked your aircraft's tire pressure? Have you checked for water in your fuel system? If there is water in your tanks or lines, it might freeze and cause you a moment of extreme silence. Have you checked your emergency locator beacon (ELT)? Has the ELT been inspected as required by regulations and is the battery current? Better yet, for a faster search and rescue response in case of an accident, you might want to upgrade your aircraft to a 406 MHz ELT. The reason is 406 MHz ELT alerts get checked out faster by the search and rescue folks compared to the more false-alert prone 121.5 MHz ELT alerts.

Passing Through

If you normally operate in a warmer area of the country during the winter months, are you prepared for cold weather operations in case you decide to fly in a colder part of the country? Are you and your aircraft prepared for the change in operating environment? Can you land and take-off on a snow-covered runway? Can you even spell ice and snow? (This writer is jealous of those who cannot spell either or who have never seen ice or snow.)

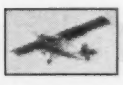
These are only a few of the many questions that pilots and aircraft owners should ask themselves as most of the nation changes to cold weather operations. I think it is safe to say that for those who operate year round in cold areas—such as along the northern tier states and in Alaska—pilots, operators, FBO's, and maintenance technicians know what has to be done to safely operate their aircraft in cold conditions and should have passed that information along to the new folks operating in those areas.

I think it is important that everyone should review their aircraft's operating manual for cold weather operations. For those who have not yet learned the lessons, and for those who may have forgotten the lessons, now is a good time to take a few minutes and review the books, both for your aircraft and on the art of winter survival. It is never a bad idea to prepare for a safe and prosperous winter season of flying.

The Dangers of Cotton Clothing

One important survival note everyone should remember is that cotton clothing can be deadly. If the cotton clothing (and you) becomes wet through such exciting things as landing or falling in a lake, river, or ocean, or while being exposed to rain, sleet, wet snow, or even your own sweat—yes, your own sweat—you may be in danger. Perspiration can wet cotton clothing enough to make you hypothermic if the environmental conditions are conducive. Whether the temperature is below freezing or is 80 degrees and sunny, but with a strong wind, hypothermia can become a killer if you are not protected. As noted, hypothermia can occur at any time of the year. The key danger numbers are both temperature and the wind chill index.

The good news is there are some



things you can do to protect yourself. These include staying dry and out of the wind. Another is wearing the right kind of clothing. Wool or the newer synthetic fleece fabrics used in some types of winter clothing are the preferred choices for winter clothing anytime you are subject to hypothermic conditions or you are at risk of becoming wet. The reason is wool and the synthetic fleece materials can help keep you warm even if they get wet and still provide a degree of insulation. Cotton cannot provide the same warmth when wet. Nor can the best natural insulator and possibly the best insulator natural or synthetic known to man, down, protect you when it gets wet. Although down has many unique advantages, such as its great insulating qualities and its ability to be compressed into a small space, down like cotton cannot protect you from heat loss when it gets wet. Anytime you are wearing down insulated clothing, you need to take care to stay dry. If your flight takes you to or over areas or through conditions where you are at risk for getting wet, you may want to carefully think about what type of clothing to wear before you leave.

The Dangers of Fire

But of the two types of material that can help protect you even in wet conditions, wool and synthetic fleece, wool is the preferred material if there is also a fire risk. The risk of fire leads to our next safety comment. If you are one of those paranoid, white knuckle-type flyers getting on your average big commercial aircraft as you prepare to takeoff on your annual mid-winter getaway flight, you may want to wear a shirt with long sleeves and long pants made of natural fibers such as wool or cotton on the flight rather than the synthetic nylon or polyester shorts and short sleeve tops or shirts many passengers wear. The reason is in case of an accident and the resulting possibility of a cabin flash fire, natural fabrics will protect you more because they won't melt or burn like many synthetic materials. Natural fabrics may char and possibly burn, but the wounds they cause are normally less severe then those of a burning synthetic material that can melt into your flesh. Also, the long pants and long sleeve shirt simply protect more of your body. If you are flying your own aircraft and you don't like wool, now you have to balance the risk of wearing cotton for fire protection compared to its hypothermia risks if it gets wet.

Traveling Shoes

The final safety comment for any flight is to wear shoes that don't restrict your mobility in case you have to quickly evacuate the aircraft. Good walking shoes (with no or low heels for women) that lace securely are one style of shoe that meets this recommendation. However, shoes with extremely thick soles or cushioning, like top of the line running shoes, can actually interfere with your "feel" of the rudder pedals.

Conclusions

There is both a need to prepare yourself and your aircraft for the winter season if you live where it gets cold. Your aircraft manual and local aircraft

SURVIVAL INFORMATION

For those with access to the Internet, it has some great outdoor survival sites and various government sites contain more data than you will ever need. Also, several national organizations publish good emergency or survival type books. Examples include survival or disaster type books published by the American Red Cross, the Boy Scouts', and the U.S. Government. There are also many good hiking and camping books sold by some of the national outdoor recreational stores or those for sale on the Internet.

An excellent source for survival type information especially for natural disasters are those produced and distributed for free or sold through the Government Printing Office (GPO). Information produced by the various Federal agencies such as the National Oceanic and Atmospheric Administration (NOAA), the Federal Emergency Management Agency (FEMA), or even the FAA, contain some great information.

One U.S. Air Force manual I recommend highly is sold through GPO. Its title is "Aircrew Survival," Air Force Pamphlet AFP 36-2246, dated 1 March 1996. Although it contains escape and evasion data for airmen in enemy territory, the waterproof green spiral bound booklet contains some great survival ideas and data for all types of terrain. From building shelters to finding food to basic first aid, the book has it all in a size that is perfect for a flight bag. For those who may want to build a good survival library, GPO also sells both the U.S. Air Force and U.S. Army detailed survival manuals that go into more detail than you ever wanted or possibly need to know. Some of the data in the military manuals are in color to aid identification of select plants, snakes, and other exciting things in the boonies.

Another good source of data is your local state government. Local state data is particularly valuable if you are going to operate within a relatively small area. The bottom line is quality information is available either for free or for a small fee, the question is are your interested enough to find it before you need it?

maintenance technician can help you prepare your aircraft. Your local certificated flight instructor or FAA Safety Team Representative can help you prepare your piloting skills for the change in operating conditions. But the most important item you have to prepare is yourself. In addition to preparing yourself, as a pilot in command, you have a responsibility to your passengers to ensure their survival in the event of an off-airport emergency landing or accident. The question is, are you prepared to save yourself and your passengers? If you have any doubts of your ability to save yourself and your passengers, you may want to take an emergency survival course or at least read a few books on the subject. In any type of survival situation, common sense and a desire to survive are the most important elements in any survival situation. A good survival kit just makes surviving that much easier.

P.S.

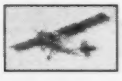
One final thought, although we have been discussing how to prepare your aircraft and yourself for winter operations and survival in the event of an accident, please remember you are also at risk driving to the airport or on any trip away from home out of sight of someone who can or would be willing to help you in the event of an accident in bad weather. There have been recorded deaths of people whose car broke down along the road in remote areas during snow storms, who tried to walk to a nearby house only to die from exposure within sight of the house. As in an aircraft accident, if you are in your car or even on a snowmobile during a snow storm, you must consider the risks of leaving the vehicle in search of help or shelter. The risks are real. In many cases the best recommendation would be to stay with the aircraft or vehicle until help arrives, but only you can make that decision based upon all available information. Although winter is a beautiful time of the year, it does pose some unique dangers. The key is knowledge and preparedness.

ESSENTIAL 10

1. **Compass**
2. **Clothing to survive most adverse conditions probable and some form of emergency shelter**
3. **Extra food and water (Note: Water is more important.)**
4. **Flashlight with extra batteries and bulb**
5. **Fire starting material, such as a candle or cotton balls covered in petroleum jelly, (35 mm plastic film containers make great storage containers for the cotton balls)**
6. **First aid kit**
7. **Sunglasses or some type of eye protection**
8. **Knife (Note: Big is not necessarily better.)**
9. **Map (A topographical one for your local area is best.)**
10. **Waterproof matches or other means of starting a fire**

For pilots, some of these basic items should be in your aircraft such as a compass, map, and flashlight. Other nice to have items include some form of tent, bivy sack, or emergency shelter, emergency signal mirror, loud whistle, plastic sheeting and tubing for collecting water, needle and thread, flexible wire saw, safety pins, cleaning wipes, solar still instructions, fishing line and hooks, wire, space blanket, some type of rope or line, more than one type or method of starting a fire, extra water in multiple bottles or canteens so if one breaks during a rough landing, you still have some water remaining, appropriate hat and coat, windbreaker, waterproof raincoat or poncho, large leaf or lawn plastic garbage bags, bug or sunscreen lotion, a metal cooking/drinking cup or container to heat food or drinks over an open fire, toilet tissue, sleeping bag in a waterproof container, insulated sleeping ground pad, ground cloth, water purifying kit, cooking and eating utensils, soap and towel, insulated waterproof sitting pad, backpack large enough to contain the items you decide to carry, cellular telephone, aircraft frequency transceiver, handheld GPS unit, lots of extra batteries, extra eyeglasses if required, large handkerchief or bandanna, canteen, any special medicines, fleece or wool sweater, appropriate fleece or wool clothing for layering, shorts, notebook and pencil, lip balm, mosquito head netting, multi-function tool, small folding wood saw, one or two hacksaw blades, duct tape, mini flares, and some basic tools that might be found in your aircraft.

Hopefully, this list of possible survival items will give you a good starting point to develop your own kit designed to protect you in your local environment. Space, weight, and cost will determine what you carry. However, regardless of what you carry, if you don't know how to safely use and carry those items, you will not gain the most protection and benefit from those items. Nothing will save you if you don't know how to survive, but people have survived on practically nothing because they knew what they were doing and their will to live overcame their environment. Have a safe winter of flying and traveling.



General Aviation Passenger SAFETY Briefing

story and photos by Susan Parson

Passenger Briefing—Complete

You may find this item, or something similar to it, on the pre-start checklist for just about any small or piston general aviation (GA) aircraft you fly. You are probably familiar with the passenger briefings you hear on airliners, and you know that the regulations—Title 14 of the Code of Federal Regulations (14 CFR) §91.107—require you to brief your passengers on how to fasten and unfasten seat belts and (if installed) safety harnesses. That's clearly important, but have you ever stopped to think about what else a truly "complete" passenger briefing in a GA aircraft should include? If not, you might start by taking a look at 14 CFR 91.519, which outlines the briefing requirements for large and turbine-powered multiengine airplanes and fractional ownership programs. While not everything on this list applies to a typical GA airplane, it still contains all the basic elements for a comprehensive and professional briefing. Arranged for easy recall, here are the items essential to a complete passenger SAFETY briefing.

Seatbelts

This is the item explicitly required in the regulations, so it is a good place to start your passenger briefing. The regulations give the pilot in command (PIC) two specific tasks with regard to seat belts and shoulder harnesses. The first is a duty to *brief* passengers on how the seat belts work. You cannot legally take off unless:

> *...the pilot in command of that aircraft ensures that each person on board is briefed on how to fasten and unfasten that person's seat belt and, if installed, shoulder harness. (14 CFR 91.107(a)(1)).*

The second statutory requirement is a duty to *notify* passengers that seat belts must be fastened. Specifically, the rule states that no pilot may take off, land, or "cause (an aircraft) to be moved on the surface" unless:

> *...the pilot in command of that aircraft ensures that each person on board has been notified to fasten his or her safety belt and, if installed, his or her shoulder harness. (14 CFR 91.107(a)(2).)*

In addition to these required topics, it is a good idea to brief your passengers on how to adjust and lock the seat position. This discussion is especially important for the passenger in the right front seat. Just imagine how startling (not to mention dangerous) it would be for everyone aboard if an unbriefed and unsecured passenger reacted to sudden rearward seat travel by instinctively grabbing the yoke.

Air

You want your passengers to be comfortable during the flight, so the second major item to include in your briefing is environmental controls. Show your passengers where the air vents are located, and tell them how to open and close overhead and/or floor-level vents in their seating area. Many GA airplanes have other environmental controls (e.g., cabin heat)

located somewhere on the instrument panel. If your passenger is airplane-savvy, you might show him or her how to adjust some or all of these controls. Remember, though, that for most non-pilots, the instrument panel for even the smallest GA aircraft is a bewildering array of dials and knobs and switches that all look alike. Unless your passenger has at least some experience in GA aircraft, it may be best to tell them to let you know if they are too hot or too cold, so that you can make the adjustment.

The subject of air brings up a more delicate issue—airsickness. Opinions differ widely on whether, and how, to discuss this topic with passengers. Some pilots advocate a direct approach, including a full briefing on location and use of airsickness bags. Others believe that a specific briefing triggers the power of suggestion in potentially queasy passengers, and prefer to avoid the subject entirely. You be the judge of your passengers' tendencies toward motion sickness, but if you are in the "don't tell" group, you will still want passengers to know that they should tell you right away if they feel uncomfortable for any reason.

Fire Extinguisher

Fires can, and do, occur in GA airplanes, especially with engine starts. You obviously don't want to scare your passengers, but the extra pair of hands could be very useful if you find yourself fighting flames during any part of the flight. If you have a fire extinguisher on board—you do, right? — show your passengers where it is located, how to unlatch it from its mount, and how to use it in the unlikely event of a fire.

Exit, Emergencies, and Equipment

Passenger briefings on airliners always include information on the location and operation of doors, and yours must do no less. The location of the door—or doors, depending on the model—is no mystery on most GA airplanes, so your briefing can be limited to door operation. Make sure that your passengers know how to open the door(s) in the event of an emergency evacuation. Since no one needs the distraction and discomfort of a door opening in flight, it is also important to brief your passengers on properly securing the door(s).

If your aircraft has doors on both sides of the fuselage, it is a good idea to develop and brief specific exit procedures to facilitate rapid evacuation of the aircraft. For example, you might plan on keeping your seat forward to allow rear seat passengers to exit via the left door, while you follow the right-seat passenger out the starboard door. This method allows you, as PIC and captain of your ship, to oversee the passenger evacuation before leaving the aircraft yourself. For aircraft with a single right-side door, consider what works best for a given group of passengers. You might want to have the right seat passenger exit and move the seat to allow rear seat passengers to follow, with you departing last. Alternatively, you might want to follow the right-seat passenger but remain at the door to assist in the evacuation of those in the rear seats. There is no single correct evacuation strategy, so the most important thing is to think it through in advance and communicate the plan to your passengers.

Another part of the emergency exit briefing is to designate a gathering point (e.g., walk aft to avoid the prop and gather at the rear of the aircraft). If you carry survival equipment, point it out to all passengers. Stress that safe and expeditious evacuation is the most important consideration, but consider designating one of your rear-seat passengers to be in charge of carrying survival equipment out of the aircraft if circumstances permit.

Finally, be sure to explain any equipment, such as supplemental oxygen, that passengers are expected to use during the flight.

Traffic and Talking

Even if you are operating under instrument flight rules (IFR), you still have a responsibility to see and avoid other traffic any time you are in visual meteorological conditions (VMC). It never hurts to have extra eyes scanning for traffic, so brief your passengers to let you know whenever they spot other aircraft. In addition, tell them what you want them to tell you. A simple "airplane on the right" will suffice, but since everyone can visualize a clock, you might ask them to given you traffic information in terms of the "o'clock" positions used by ATC. The added advantage of this option is that passengers listening to ATC communications will have a better idea of where to look when you get a traffic call.

Expectations for communications —talking—are another good topic to include in your passenger briefing. Passengers may not readily understand the term "sterile cockpit," but they will certainly understand that there are times when you need to focus fully on your flying. Let your passengers know that they should not attempt to talk to you (except for traffic point-outs) during the busy takeoff/climb and approach/landing phases of the flight. If your intercom does not permit you to isolate the crew, let passengers know if you expect them to minimize their own conversation during these times.

Your Questions?

It is both professional and polite to conclude by giving your passengers an opportunity to ask questions about any part of the flight. Since some passengers may be intimidated by the novelty of GA flying or embarrassed to ask "dumb" questions, watch for any signs of confusion or concern. Make a special effort to invite those questions needed to clarify any part of the briefing they did not understand. The question time is a great opportunity to reassure a reluctant rider, or to encourage a potential future pilot's interest in aviation.

Passenger SAFETY Briefing – COMPLETE. Let's go flying!

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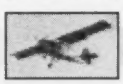
Susan Parson is a special assistant in Flight Standards' General Aviation and Commercial Division.



(Cut, fold in center, laminate, and use to brief GA passengers)

Passenger SAFETY Briefing

N_____

S Seat belts fastened for taxi, takeoff, landing.
Shoulder harnesses fastened for takeoff, landing.
Seat position adjusted and locked in place.

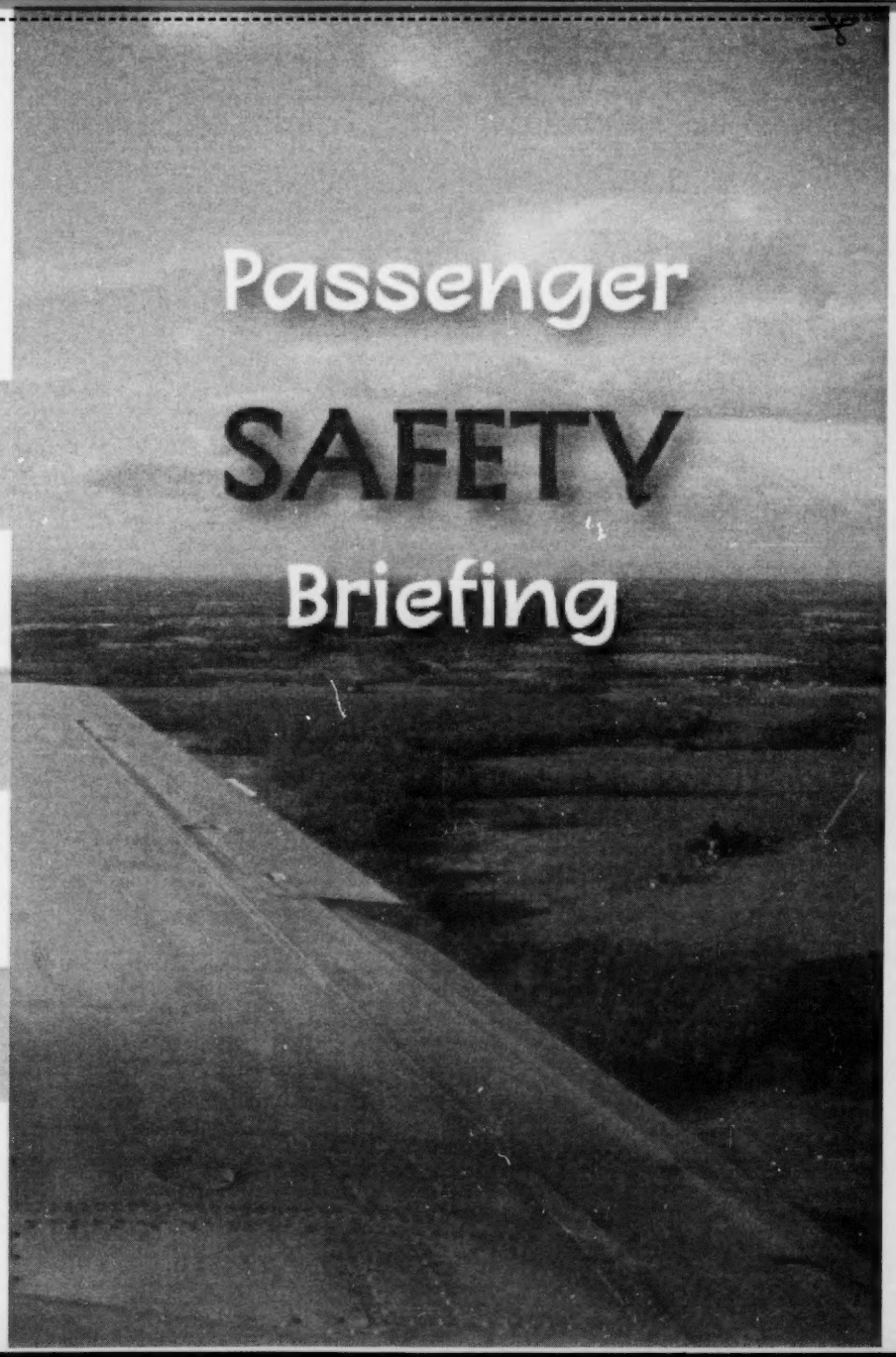
A Air vents (*location and operation*).
All environmental controls (*discussed*).
Action in case of any passenger discomfort.

F Fire extinguisher (*location and operation*)

E Exit doors (*how to secure; how to open*)
Emergency evacuation plan.
Emergency/survival kit (*location and contents*).
Equipment (*location and operation*).

T Traffic (*scanning, spotting, notifying pilot*).
Talking (*"sterile cockpit" expectations*).

Y Your questions? (*Speak up!*)



A Tale of Two Diverts

by Michael Lenz

Once upon a time, two flights set out from two different east coast cities to attend a meeting in Indiana. Both pilots planned to fly their personal Technically Advanced Aircraft to the meeting. One pilot was Jack Pennypincher and the other Sally Brightlites.

The weather was originally forecast to be good enough to complete the trip VFR. There was a low pressure center expected to move over the route of flight from the southwest and spread rain and snow showers later that Sunday night and into Monday. This system was then going to move out of the picture and nice weather was expected along the route for the mid-week return trip at the conclusion of the meeting.

Mother Nature threw a monkey wrench into the mix, however, as the low pressure system intensified and began moving faster than anticipated. Both Jack and Sally, being accustomed to the volatile nature of weather, dutifully checked the weather while en route by calling Flight Watch.

As the clouds lowered and some rain and snow showers began blocking the route of both pilots, they each made the decision to divert, re-evaluate the weather from the ground, and then decide whether to fly or drive the remainder of the trip.

Jack Pennypincher saw a general aviation, non-towered airport with an 8,000 foot runway and several instrument approaches. Jack figured this would be a good place to stop. It was right on his course, probably had cheap gas and he would be able to get any service he needed, like food and lodging, while enjoying the lower prices of a small town on the chance he would have to spend the night.

Sally Brightlites thought about the same airport for her divert, but ultimately decided on Big-City International, which was 30 miles north of her course.

They both looked at the weather when they got on the ground and decided it would be best to complete the trip via rental car—about the same 175 road miles for each of them.

The next day, they had both arrived and realized during the self-introductions that they had something in common and struck up a conversation at the first break.

Sally told of her divert to Big City International and lamented about the fast-talking controllers, landing fee, and rather pricey rental car rates.

Sally looked well-rested and composed. Jack was rather haggard. Jack did boast that he was the only one on the Unicom frequency and was cleared direct to his divert airport. The airport was nice and fuel was inexpensive. He said he got a great rate on the rental car, but that's where Jack's experience and Sally's experience started to diverge significantly.

Jack said that, because it was Sunday night, no one was around, and he had to call out the fueler. Although the price per gallon was low, the call-back surcharge cancelled out that savings.

Then there was another call out for the rental car company. The only company in town was Real Cheap Carz and they too had a Sunday night surcharge. But a couple hours later, and close to midnight, Jack had his car. Sally said she was almost to the meeting hotel around midnight.

Jack said the heater didn't work in his car and when the windows fogged-up, he rolled down his window. That brought quite a chill into the car and, when he attempted to roll up the window, the handle broke off in his hand. Jack continued down the cold lonely country road, shivering, and waiting to drive into an area of cell phone coverage in order to call his wife. When he was able to place the call, his teeth were chattering so badly that his wife had trouble understanding him. Sally said, "That's too bad." The rental car company she

used was in the terminal, and they felt sorry for her, and gave her a luxury car at the standard rate.

Jack grimaced at his decision to go to the small, friendly airport and continued with his tale. He said, when he hung up with his wife, the engine overheat light came on and he realized why the heater didn't work. There was not enough coolant in the radiator. Jack called Real Cheap Carz and got the answering machine. He left a message describing his situation and asked that they call him back on his cell phone. They called him back and said he was too far away to bring him another car and he should call a tow truck. They'd be happy to pay for it. It was now about 1:30 a.m.

Jack found the number and called the tow truck. It took about an hour for it to arrive. The car was finally on the hook, Jack jumped in the truck, and they drove off. Jack asked the driver where he put his briefcase and cell phone, but the driver hadn't seen it. Jack realized it was on the roof of the rental car and must have fallen off by now. He asked the driver to go back to look for it. The driver said "Sure," but there would be an extra mileage charge.

Jack figured his luck was finally changing as they approached the spot where the tow truck picked him up—he saw his briefcase on the ground. The tow truck driver spun around and stopped as a crunching sound was heard. That was Jack's cell phone under the tow truck wheels. Oh, well!

The tow truck driver pointed out that the garage was closed for the night, so the cooling system repairs and fill would have to wait for the morning, but he'd be lucky enough to be first to get service and be on his way. Halleluiah! But wait, there's even more good news. There is a hotel right next to the garage, and it was right above an all-night bowling alley, if he was looking for something to do. It doesn't get much better than this!

Pennypincher decided he couldn't take any more as they pulled up to the garage. He checked into the hotel, forfeiting his deposit fee for the first night at the hotel where his meeting was held. The bowling alley was in full swing, even at 2:30 a.m., and there were lots of happy and loud bowlers enjoying themselves. It was league championship night—too good to be true! Sally said she didn't hear a peep all night as the king-size bed had been turned down and a couple of fancy chocolates were placed on her pillow. Jack just rubbed his tired eyes and shook his head.

Jack said he did finally get to sleep, right after the bowling awards ceremony. Then the phone rang and he wondered who was calling him in the middle of the night and what was that light outside? It was 6:30 a.m., and it was his wake-up call.

Sally said she had trouble getting out of the warm bed too.

So where's the aviation side of this story. It lies in flight planning, but has nothing to do with the usual weather, routing, or other flight factors. It rests with the simpler basic needs, like food and shelter. Once the pilot decides to stop short of the destination, the aviation stories usually stop. But those basic needs, when they can't be met, can pressure a pilot to press on.

First it rests with a pilot diverting on a fairly important trip and not finding any services. At least Pennypincher was able to get a car and place to stay. If the car hadn't been available, he might have been tempted to press on in the face of the approaching weather. As bad as his ground experiences were, deciding he had to get there and continuing with the flight, could have been far worse.

In studies of weather accidents, we find they almost always occur on cross-country trips. Many times the pilots stopped short of their destination for weather or repairs and then surprisingly continued. In the accident investigation, it usually looks like nothing changed in the weather forecast or the problem with the plane persisted, and there was no mechanic around. So the pilot continued to the accident scene.

If the services, both human and aviation, could have been met, the alternative, an accident, might have been avoided.

Some preflight "Divert Planning" can be a good idea, particularly if the trip is important. Consider, those places where there is:

- Food
- Ground transportation
- Lodging
- Aircraft repairs and service
- Fuel availability

In a real or near-emergency, like a rough-running engine, the nearest airport is the only smart option. But many times we have a degree of discretion in where we go. In the story, Jack and Sally both made reasoned decisions as to where to divert. Luck just wasn't with Jack that night. He could have stacked the deck in his favor by following Sally's lead to Big City International Airport.

Larger airports, particularly those with passenger service, may be the best bet when diverts are necessary. If you like the smaller airports and friendlier service that typical general aviation airports offer, be sure they're open during the hours you might be arriving and can meet your basic needs—either with facilities on the field or nearby. This is easy to figure out and adds only an extra few minutes to your flight planning. There are numerous airport directories available that show all airport services, aviation and otherwise. The Web is great for getting the latest information on those airports that you may be considering. Jot down some of the phone numbers before you go or give a call or two to your most likely alternate airports to confirm which services will be available.

It beats trying to read the small print in the cockpit at night when time is becoming critical. And it really beats pressing on in the face of challenging weather or mechanical problems, when you know you should stop or turn around, but flying the plane is becoming all-consuming. We don't want to read about you!

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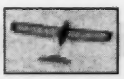
Michael Lenz is a Program Analyst in Flight Standards Service's General Aviation and Commercial Division.



How do I get there from here?

by James Williams

Ken Peppard photo

So you want to be a professional pilot? The question on your mind then is: How do I get there from here? This article is aimed particularly at those who are just getting into aviation and who are looking at colleges. Thirty years ago there was no question. If you wanted to be a professional pilot, there was really only one option that gave you the best possible chance and that was the military. While that is still a good option it has become a lot less prevalent. Over the years there has been a rise in the number of programs at universities all over the country that allow pilots to earn their ratings while getting an education. The main thing to remember is that there is no silver bullet. There are advantages and disadvantages to every approach and it's really a personal decision. Ask yourself, "What works best for me?"

Today there are three real options to get that pilot position. First is still the military, which is probably the best training in the world, if you don't mind that whole getting shot at thing. The advantages are great, of course. Among them are all the training is free, you get to fly some very cool aircraft right out training, and, of course, the training quality is exceptional. The main disadvantage is you normally have a long commitment in exchange for all that high quality training. I won't discuss the military option here, but I'm sure if you contact your local recruiter they would be happy to give you more information.

For those who don't want to join up, there are now good options in the private sector. Your second option is to find an airport near the college of your choice and fly while you are in school. The main advantage of this approach is cost. On average, training outside of a university program will be less expensive than the training provided by the university and the ratings are the same. Many airports have a flight school and are more than willing to train you right through your basic Commercial Instrument Multi-engine and possibly your CFI, CFII, and MEI. The major disadvantage is that you now have to find time to fly while in a full academic program, which can be difficult, and you get no college credit for your flying or your ground school. I hear you saying, "Well, if I just want to be a pilot, why do I need to go to col-

An aerial view of Embry Riddle Aeronautical University's campus in Prescott, Arizona. Photo courtesy of ERAU—Prescott, AZ.

lege at all?" The answer is that almost all major airlines require a four year degree. They don't really care what the degree is in, but they want you to have one to prove you can stick with something and that you can learn at a professional level since they are going to put you into an intense and demanding training program to fly their airplanes.

Your third option is a university with a flight program. In these programs you not only get college credit for your ground school and flight courses; you also get assigned times to fly in most cases. Additionally, you get training that is of a known quality to those doing the hiring in the industry. With most university programs, chances are someone on the hiring committee either went to one of the universities or at least has heard of them. This gives you a major advantage. The tradeoff is, of course, cost. On average you'll pay more for the university training than outside the program and you'll pay more for your

education than you would in a non-flight program. In general a university program will have greater facilities and require more overhead. This will generally lead to a higher cost to the student. The advantage is usually that university fleets will be on the average more modern than most private fleets.

For those of you who have never flown or even been in a small aircraft I would give one caution, try it first. So if you think you want to be a pilot you owe it to yourself to test the waters before jumping right in. Go to your local airport and take a couple flying lessons so you know what to expect. Flying an airplane isn't for everyone. It's a skill just like any number of other activities like driving, baseball, or swimming. Almost all of us can bounce a basketball, but that doesn't mean we're as good as Michael Jordan. Same idea goes for flying. Almost all of us have the physical requirements to fly, but that doesn't mean we're going to be a good pilot. Some people just don't have the aptitude for it. You have to be able to divide your attention and think in three dimensions, which some people have trouble with. You also have to be able to multi-task. That is why I would urge you try flying before you commit yourself to a university flight program. A couple hours of lessons could help you figure out if this is what you want. If it doesn't work out there are always plenty of jobs available in the industry that don't include flying. Many universities have programs for these kinds of jobs—those who want to be in the aviation industry, but don't want to fly. Flying isn't always going to be fun and working as a pilot isn't always going to be great, but you should enjoy it at a basic level. If you don't, you're probably heading in the wrong direction.

Having said that, I also must again impress upon you that there is no "right" way. It is really a matter of finding the way that works for you. What follows will be a brief look at a few of programs out there. The number one thing I can say is, do your research. If this is the path you choose, it's going to be very expensive so you want be sure you're getting what's best for you. Please remember, this is not an exhaustive list. There are a lot of programs I can't cover in the very limited space available. So once again, do your research. The goal here is simply to give you an idea of what's out there—not to be a definitive source for comparison. Also it's worth waiting to see what kind financial aid a school will offer you before you make any decision. What schools offer in terms of scholarships and grants vary widely so don't just look at the initial rate because at some schools most students don't pay the full amount. A friend of mine, who worked as an admission counselor at one university, once told me that almost no students paid the listed tuition at his school; whereas at the competitor up the road, most did.

Here are a few things to consider when looking at schools. First aircraft availability, will you be able to get to fly when you arrive. This is key. A few years ago Embry Riddle Daytona had a problem with getting students time in aircraft which prevented them from flying until at least the second semester of their freshman year. I know because I was one of the people who got the letter explaining the problem. I had already decided against going to Embry Riddle for other reasons, but I know people for whom this was a deciding factor. Another thing to consider is student to facility ratio. This can vary widely and isn't exact, but is a good general measure of what class sizes you can expect in your higher level core courses.

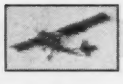
Something to consider when you start your college career is getting involved in extracurricular activities. At most aviation schools there are groups of people like you who like airplanes and fly and these could be valuable resources for you. Personally I joined two organizations and they have been invaluable not only while I was in school but after I left.

The first group was Alpha Eta Rho International Aviation fraternity. This Coed fraternity is in many cases composed of very different people whose main common interest is aviation. In addition to providing a support network for you on campus they also have an extensive alumni network from many different schools that can help you make contacts in the industry. Alpha Eta Rho also allows many students to get involved in leadership roles which provide valuable experience.

The second group I joined was my school's National Intercollegiate Flying Association (NIFA) flight team. These teams compete in flying and ground event against teams from other schools at the regional and national level. Ground events include flight planning, flight computer (E6B) use, simulator flying, aircraft recognition, and more. Flying events offer power on and off spot landings, navigation, and message drop (where pilots do a "bombing run" on two targets with small light weight wood boxes). I was lucky enough to compete in all four regional competitions I was eligible for and three national competitions. We qualified for the fourth national competition, but funding issues prevented us from attending.

One of the best parts of competing was traveling to the competition location. During my NIFA career we traveled to five regional and national competitions (we hosted the other two). These trips rank among the highlights of my college experience. I mean how many private pilots can say they've flown from Melbourne, Florida, to Grand Forks, North Dakota, in GA airplane. In addition to having a fantastic time these flight offer a valuable training experience. You have to plan and fly a real cross country without the safety net of instructors and professors. You also have to deal with bad weather and unfamiliar areas along your route. Another learning experience is that many of the teams get little active support from the school so member have to request funding and deal with bureaucracies at the school, which is an important life lesson.

In no particular order, here are some of the programs out there. Just one last word of advice, Go visit at least a couple of your options because what looks good on paper doesn't always translate into reality.



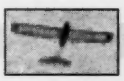
A Florida Tech Piper Warrior *flies over Florida's Atlantic Coast. Greg Reverdiau© photo*

Florida Institute of Technology, College of Aeronautics, Melbourne, Florida

Located in Melbourne, about an hour southeast of Orlando along Florida's east coast, Florida Tech is a full university with undergraduate, masters, and doctoral programs in Aeronautics. The University operates a part 141 flight school with examining authority. That means that all check rides and tests are done in house and lower minimum flight times are required for certification. The fleet consists mainly of Piper aircraft including, 21 *Warriors* (PA28-161), 4 *Arrows* (PA28R-201), and 3 *Seminoles* (PA44-180) Multi-engine trainers. There are also 2 Cessna C-172SPs, 1 Cirrus Design SR-22, and 1 American Champion *Citabria*. This fleet allows Florida Tech to provide a full flight training program from zero hours to Multi-engine Instructor and more. Florida Tech is a smaller university with about 2,400 undergraduate and 2,400 graduate students in all disciplines and about 350 students in the College of Aeronautics with about 270 of those flight students. One of the advantages of Florida Tech is that as a full university, there are other majors and colleges there and your non-aviation classes are taught by those departments and not an aviation professor pressed into service in an unfamiliar area. I must confess that Florida Tech is my alma mater, so I'm not completely unbiased. That said I would say Florida Tech is a good fit for a student who wants a smaller school with a good aviation program. The smaller class sizes allowed me to get to know my professors and fellow students. Also, as a smaller university, I was almost always able to resolve whatever administrative issues I had relatively quickly and easily. "Florida Tech is proud of the reputation in the industry of its graduates for high quality training both in and out of the airplane," Interim Dean Dr. Kenneth Crooks said. They are currently in the planning phase for a new $3.1 million flight operations facility at the airport. For more information about Florida Tech you can visit <www.fit.edu>.

Embry Riddle Aeronautical University, Daytona Beach, Florida

With it's main campus on Daytona Beach International Airport, Embry



Riddle Aeronautical University (ERAU) is a focused aviation university. They operate a part 141 flight school with examining authority. Embry Riddle offers bachelors and masters degrees in aviation. About 4,700 students attend the Daytona Beach campus. ERAU also has a campus in Prescott Arizona (discussed later in this article) and numerous extended campuses around the country. Additionally ERAU offers distance learning via the Internet. The school's fleet consists of 40 Cessna *Skyhawks* (C-172), 5 Piper *Arrows*, and 12 Piper *Seminoles*.

Daytona Beach offers more of a city feeling than Melbourne to the south. Daytona Beach is a big tourist destination and has more amenities, but with that comes the added traffic and generally higher cost. As I've said before it really depends on your own personal preference. The Daytona Beach campus offers the advantage of being located on the airport, whereas most other programs are located off airport and have separate facilities. This allows students to walk from class to flight lessons without using some kind of shuttle service to the airport. Embry Riddle's Daytona Beach operation is fairly large by the standards set by most other universities. The major advantage is that aviation is the main force behind the university and, as such, it doesn't really have to compete for resources, as programs at other universities might have to. The main disadvantage would be that as a large program you could possibly have trouble with congestion on the airport and in the surrounding air space. This is made worse by other training programs and moderate airline traffic located at the Daytona Beach International Airport. These concerns do not seems to prevent the Daytona campus from providing good training, but they might pose a slight challenge for finding a clear area for some training maneuvers. For more information about Embry Riddle Daytona Beach campus you can visit <www.erau. edu>

Embry Riddle Aeronautical University, Prescott, Arizona

Located in Arizona, Embry Riddle's Prescott campus is one of the best options for those looking to go to school in the western United States.

A University of North Dakota's aircraft flies over Grand Forks International Airport (GFK). Photo courtesy of the University of North Dakota

Its fleet consists of 17 Cessna *Skyhawks* (up rated to 180hp to combat the high altitude), 8 Piper *Seminoles*, 2 Cessna C-182RGs, and 2 *Super Decathlons*. The Prescott campus serves about 1,630 students. Prescott feels almost like a separate institution. Certainly the surroundings are quite different considering the obvious differences between a Florida beach town and a small town in the Arizona desert. During the winter Prescott can get snow on occasion, but it melts quickly and the overall climate is great for flying. Associate Dean Sean Jeralds says that the structure and standardization provided by his program is a key advantage. The Prescott campus began using and testing Automatic Dependant Surveillance-Broadcast (ADS-B) equipment after signing an agreement with the FAA in 2002. The system allows pilots to see the location of all other ADS-B equipped aircraft in the area and record flights, in addition to many other features. This is a useful tool not only for avoiding other aircraft but also for instructor reviews of flight lessons. The campus plans to transition to glass cockpits in their Cessna 172 fleet during 2007. Dean Jeralds cites the ability to memorize and retain large quantities of information and situational awareness as two of the most important qualities of successful students. For more information about Embry Riddle's Prescott campus visit <www.erau.edu>.

University of North Dakota, John D. Odegard School Of Aerospace Sciences, Grand Forks, North Dakota

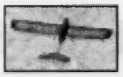
The University of North Dakota at Grand Forks is located in northeastern North Dakota about three hours northwest of Minneapolis. If you can deal with the weather, UND offers a good balance of a medium to large-sized university with state funding and all the advantages that lends. The university offers bachelors and masters degrees in aviation. The schools fleet consists of 37 Piper *Warriors*, 9 Piper *Arrows*, 12 Piper *Seminoles*, 1 Piper *Top Cub* on amphibian floats, 2 *Super Decathlons*, 4 Cirrus SR-20s, 1 Diamond *Twin Star*, 5 Schweizer H-300 Helicopters, 2 Bell 206 *Jet Ranger* Helicopters, and a McDonnell-Douglas DC-8-72, operated for NASA research. The campus has an enrollment of about 13,000 total students with about 1,500 aviation students, around 1,000 of which are flight students. UND is probably the best bargain in an aviation university because North Dakota residence is relatively easy to establish and in state tuition is a lot less expensive than most of the other schools. Being a state school has another advantage in a much larger budget for aircraft and facilities. During my two visits I was stunned by the high quality and vastness of the facilities. That said there is a price to be paid. That price is location. Between the weather and a relatively remote location many people don't consider UND. The weather issue is to be expected of any university located as far north as UND, but it poses more interesting challenges for a flight student. That aside, 75% of the time the weather is VFR. As UND's Kent Lovelace pointed out, "you have to learn to fly in all four seasons." Professor Lovelace also points to the University's dedication to academic excellence in its students and curriculum as an advantage over other programs. UND is definitely worth consideration and a visit if you're looking at aviation universities. You might want to visit during the winter just to make sure you can take the cold, otherwise you could be in for a very rude awakening. For those looking for a high quality aviation education and a cool climate UND could an excellent solution. For more information you can visit <www.und.edu>.

Kansas State University, College of Technology and Aviation, Salina, Kansas

Kansas State University (K-State) at Salina is a full university offering bachelors in either professional pilot or aviation maintenance curriculums. A University of 23,000 students, K-State has 248 aviation students of which 202 are flight students. Professor Marlon Johnston looks to K-State's unique ability to provide hands on experience in a corporate flight department, as well as excellent all around training, as a major advantage of K-State's program. Some senior students are able to work as a first officer on either a Beech C90 *King Air* or Cessna *Citation* that are tasked with meeting the university's travel needs. In this role, students work with the captain to learn about every facet of corporate operations. As Professor Johnston said, "It's not just training, it's real world experience." As a state university, tuition is dramatically reduced with state residency, so check local laws to see what is required to establish residency. Weather in Kansas does mean you'll get familiar with all four seasons, but it has no significant impact on student progress. K-State also has an aviation maintenance program for students interested in becoming an Airframe and Power Plant mechanic. Adding in the other facets of a major university, such as a large student body, full athletic programs, and greater resources, many students will find it may be the best fit for them. While the aviation program may be smaller than some, you get more of the big college experience than at smaller more focused schools. For more information you can visit <www.k-state.edu>.

Utah State University, College of Engineering, Logan, Utah

Located in Logan, about 80 miles northeast of Salt Lake City, Utah State has about 23,000 students in its seven colleges. Of those about 400 are aviation students and about 300 of those are flight students. Utah State Director of Aviation, Dr. Rick Charles, points to the high quality of training and very reasonable cost as a distinct advantage Utah State offers. When compared to some of the competition, Utah State's cost structure is impressively low. Another factor is the impressive geography of northern Utah. Logan is located in a valley which

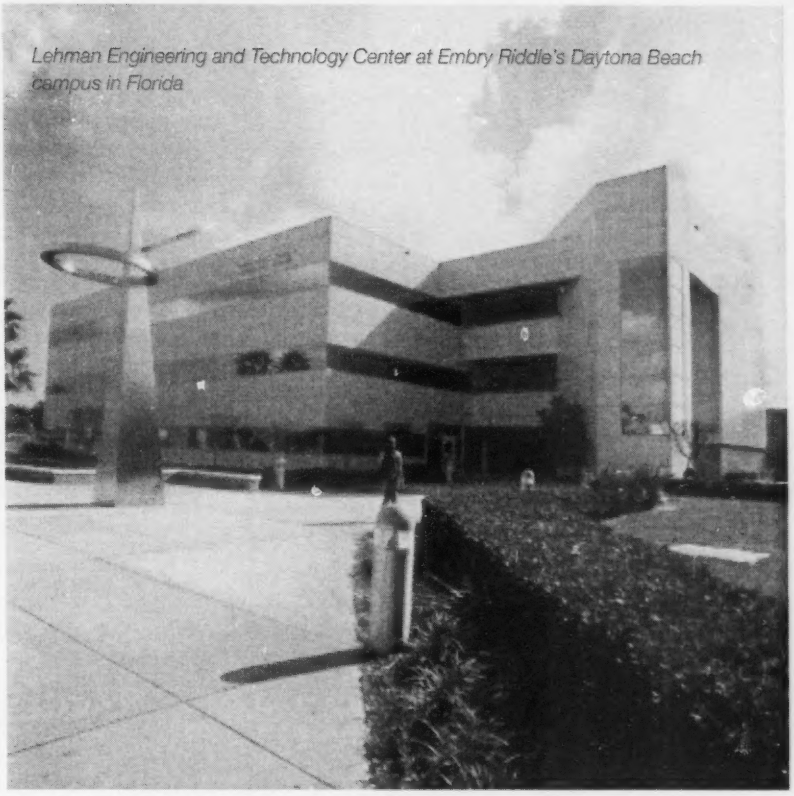


means students learn to fly in mountainous terrain. The university has rigorous training programs with extra attention paid to safety and mountain flying. The result is that students enjoy great success finding employment after graduation. Utah State operates a recently modernized fleet of 10 Diamond DA-40s, 2 DA-42 *Twinstars*, and 3 Piper *Arrows*. The Diamond aircraft feature Garmin G1000™ glass cockpits. Being located in northern Utah, some weather delays are possible. While most students finish flight courses on time, there is a slight chance of some overlap. Between the high quality of its training and a lower cost than any of its competitors, Utah State could be a very good choice for a lot of people out there. For more information, visit <www.usu.edu>.

As I said in beginning this article there is no silver bullet that will work for everyone. The thing to remember is you have to find a method and a place that works for you. This is just a very small sample of some of the aviation programs out there, so look around and see what you find. No one program mentioned or not mentioned here is any better than another. The goal is to find a place where you're going to be comfortable and happy. It could be the best program in the world, but if it doesn't fit your needs and lifestyle, then it's no good for you. One of the things almost all of the representatives contacted for this article agreed on is that you have to do what's right for you and that not everyone is right for every program.

I've said it before, but it bears repeating, do your research. This is no different from any big decision in life. The more prepared you are the better your chances of making a decision that's right for you. I've tried to stress that there are no right or wrong choices here, just choices that are better or worse for you.

Another thing to consider, keep an open mind. I know I had some pretty strong preconceived notions going into my selection process. After visiting my three favorite schools, my preconceived notions proved wrong and my preference order was inverted. The school I had assumed would be my favorite turned out to be a disappointment in ways I couldn't really put a finger on.



Lehman Engineering and Technology Center at Embry Riddle's Daytona Beach campus in Florida

Photo courtesy of ERAU, Daytona Beach, FL

That leads me to another important restatement; visit at least a few of your possible choices. This is the place you're going to be spending the next three or four years of your life and a lot of money, so it's worth the cost to travel there and make sure it's what you want and what's going to work best for you.

At the beginning we asked a simple question: How do I get to a professional pilot career? It turns out the answer isn't so simple. That's because there is no single right answer. We are all different people and have different needs and objectives. Remember it's a long road to that airline or corporate job of your dreams and this is just the first step. Keep in mind that no one can guarantee you a job when you start any program. It takes a lot of hard work to get through any professional flight program and then you still have to build experience and market yourself to the industry (this is especially true if you're going for a corporate job). Most schools are helpful in finding jobs opportunities, but remember it's up to you to make sure it happens.

Many schools will tout the benefits of doing an internship with an airline or other company to make contacts. A lot of airlines offer guaranteed interviews and lowered minimum time requirements for successful interns. In personal experience I've seen internships help people and I've seen them hurt people. Overall I'd say they are useful, but not necessary. Remember internships don't guarantee you a job; they only help you get your foot in the door.

In the end it all comes down to the single question: What's best for me?

NASA's Aviation Safety Reporting System Turns 30

by Michael Mewhinney

NASA's Aviation Safety Reporting System (ASRS), the confidential reporting system widely used by the aviation community to identify potential safety hazards, recently marked its 30-year anniversary. Established under a memorandum of agreement between National Aeronautics and Space Administration (NASA) and the Federal Aviation Administration (FAA), the ASRS began collecting, analyzing, and responding to voluntarily submitted aviation safety incident reports in 1976. These confidential reports are used to identify deficiencies and discrepancies in order to alert the National Aviation System and provide safety information to government and industry to help improve safety and reduce accidents.

"Since the implementation of the Aviation Safety Reporting System, more than 715,000 reports have been submitted by pilots, dispatchers, mechanics, air traffic controllers, flight attendants, and others in both commercial and general aviation," said Linda Connell, Director of the ASRS, which is located at NASA Ames Research Center, Moffett Field, California. "Many of those reports have had a direct impact on making the nation's airways safer, and we're extremely proud of our continuing contributions to safety."

"ASRS is an excellent tool that has helped us spot rare and infrequent emerging threats and hazards," said FAA Associate Administrator for Aviation Safety Nicholas A. Sabatini. "To continue putting downward pressure on the accident rate, we need this kind of information about trends, about precursors, and about what is going on every day in the aviation system."

Over the past 30 years, the ASRS has issued more than 4,100 safety alerts to the FAA and other decision makers in the aviation community who are in a position to correct unsafe conditions. Action has been taken by approximately 42 percent of the ASRS alert recipients to correct the hazardous condition. Recent ASRS safety alerts address a wide range of safety issues, including air traffic departure procedures, aircraft equipment problems, airport signage and marking issues, similar-sounding navigation fixes, and aeronautical chart deficiencies, which may involve significant human factor and system performance contributions.

An example of a safety alert issued by ASRS involved failure of an aircraft's cockpit seat locks. ASRS documented cases in which failure of the seat locking mechanism resulted in the captain's or first officer's seat sliding back during takeoff or other critical flight maneuvers. The FAA responded to the ASRS alert and subsequently issued an Airworthiness Directive.

"The ASRS is the largest repository of aviation human factors incidents in the world," Connell noted, "and has conducted more than 7,100 database searches for government agencies, industry groups, research organizations, aircraft manufacturers, aviation students, and a wide variety of other organizations."

"ASRS has long assisted NTSB in our efforts to investigate aviation accidents. In recent years, the ASRS team has provided NTSB with search requests within the first few hours of an investigation," said NTSB Chairman Mark V. Rosenker.

In addition to safety alerts and database searches, ASRS research findings have also been influential. An early ASRS study on cockpit distractions led the FAA to enact the "sterile cockpit rule," which prohibits crewmembers from performing nonessential duties and activities during all flight operations that occur below 10,000 feet mean sea level (MSL). Another ASRS data finding addressed the content and format of aviation checklists and manuals for flight crews that were incorporated in a FAA advisory circular. Other significant ASRS accomplishments include identification of issues regarding increased separation standards behind Boeing 757 aircraft to reduce wake turbulence, safety guidance governing the use of passenger electronic devices to reduce their impact on aircraft communication and navigation systems, and improvements in runway warning lights and markers. Data from ASRS has helped lead to revisions in the format and content of aviation checklists and manuals for flight crews. Thanks in part to safety alerts published by the ASRS, the FAA now requires preflight inspections for ice on the outside of the aircraft to reduce the potential for hazardous ice-buildup on wings and other parts of the aircraft.

The ASRS has become a model for safety reporting systems worldwide and is a charter member of the International Confidential Aviation Safety Systems (ICASS), a group of 12 nations, which operate aviation safety reporting systems similar to ASRS. The ASRS has also been recognized for its safety contributions in other industries, including medicine in which NASA ASRS is collaborating with the Department of Veteran Affairs to operate the NASA/VA Patient Safety Reporting System (PSRS).

The ASRS provides a range of safety products, including safety alerts, publications, database search requests, quick response reports in support of accident investigation or safety topics, and research products for government and industry. Significant developments in 2006 include two new automated services: Database Online and Electronic Report Submission—both can be accessed directly from the ASRS Web site. ASRS is looking

forward to the next 30 years with more improvements through safety research and development.

For information about ASRS on the Web, visit: <http://asrs.arc.nasa.gov>. For information about NASA and agency programs on the Web, visit: <http://www.nasa.gov/home>.

Michael Mewhinney is with the Public Affairs Office at NASA's Ames Research Center, Moffett Field, California.

The ASRS Database Is Now Searchable Online!

from the September 2006 issue of Callback

The ASRS database is available through a browser-based, cross-platform "Web Query" link developed by ASRS. The ASRS database is the world's largest repository of voluntary, confidential safety information—provided by aviation's frontline personnel, including pilots, controllers, mechanics, flight attendants, dispatchers, and others. The database provides a foundation for specific aviation safety products and subsequent research addressing a variety of issues.

ASRS's database includes the narratives submitted by reporters (after they have been sanitized for identifying details). These narratives provide an exceptionally rich source of information for policy development, human factors research, education, training, and more. The database also contains coded information by expert analysts from the original report that is used for data retrieval and analyses.

ASRS would appreciate your feedback about the ASRS Database Online service. There is a link for supplying user feedback about the ASRS Database Online service. Users can tell ASRS what they like, don't like, and what they would like to see in future versions. This feedback will help ASRS develop and improve online search capabilities.

ASRS Database Online is accessible through the ASRS Web site at: <http://asrs.arc.nasa.gov> or <http://asrs.arc.nasa.gov/search.htm>.

Submit Your ASRS Report Electronically!

from the November 2006 issue of Callback

Electronic Report Submission (ERS), the ability to fill out an ASRS report on a computer and send it to ASRS via a secure Internet connection, is now operational. All ASRS Reporting Forms (General Pilot, Air Traffic Control, Maintenance, and Cabin Crew) can now be sent electronically via the ASRS Web site at: <http://asrs.arc.nasa.gov>

ASRS has fully explored privacy protection and confidentiality concerns for Electronic Report Submission. ASRS has worked with NASA's Jet Propulsion Laboratories (JPL), home to the Mars' Rovers, to apply sophisticated new technology that will ensure confidentiality.

The next time you experience a safety incident or have a safety concern, take ERS for a test flight and try out this new technology!

Memorial of a Different Kind

by Michael Lenz

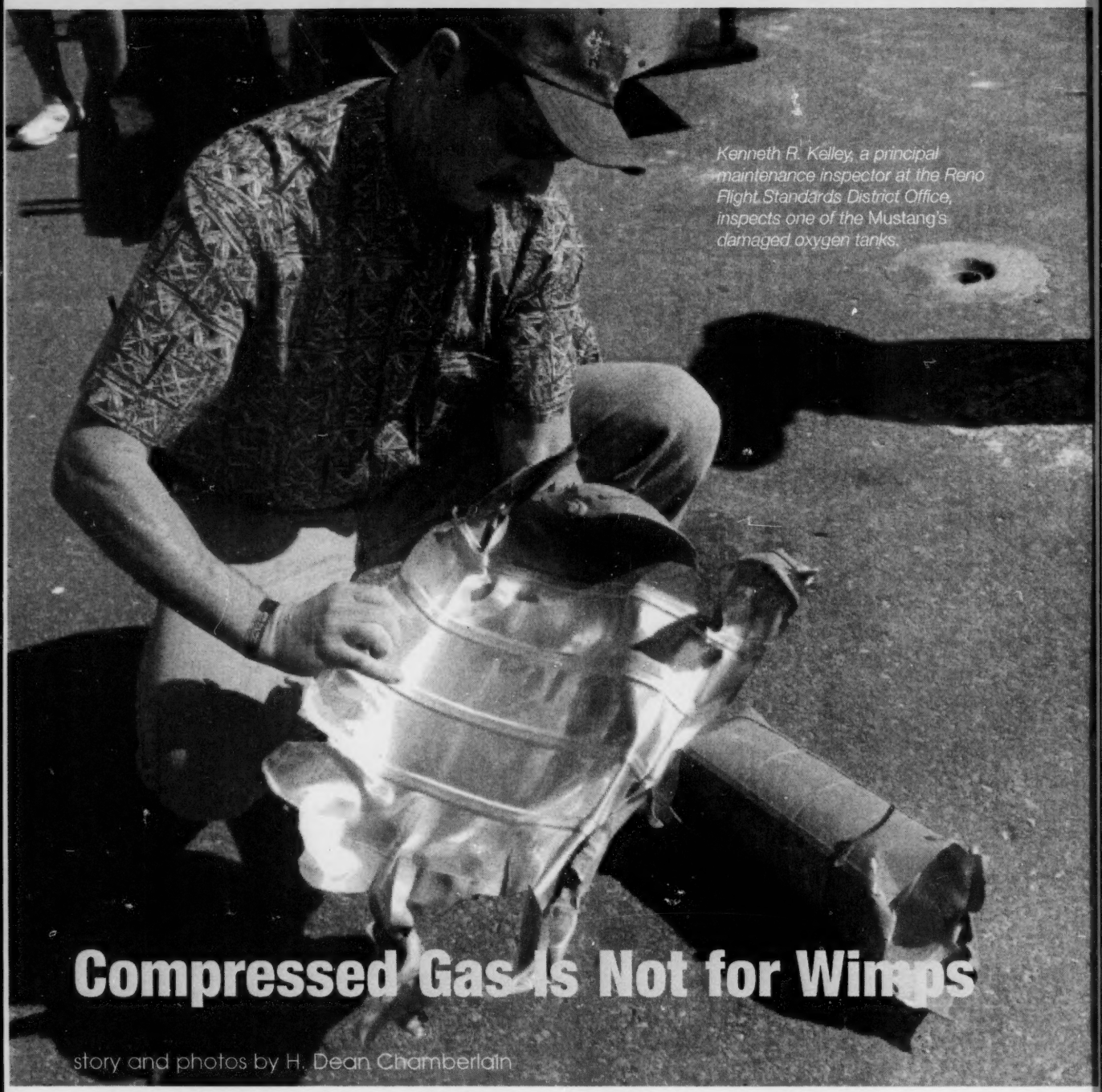
The ASRS program grew out of a specific accident in which an airliner was cleared for an approach to Washington's Dulles Airport (KIAD). The crew debated about the altitude to which they were now cleared to descend. Unfortunately, they descended lower than the mountainous terrain west of Dulles and struck terrain with all on board being killed. During the investigation of that accident, it was revealed that other flight crews suffered the same confusion and descended early, but the error was caught before any accidents occurred. These crews said that they feared reprisal if they admitted their errors. It became painfully obvious that a means was needed to report possibly life-saving safety information without fear.

A couple years ago I read an article in the *Washington Post* about the family members of the flight's victims. These family members lamented that there was no monument to the victims of this accident. The crash site was on private property and near some government facilities, so there was no opportunity to construct any type of memorial.

When I thought about this, I realized that these victims have the ultimate memorial in the ASRS program. There were 92 people killed in that accident as I recall, but thousands of people are alive today because of what grew out of the accident. It's unfortunate that the victims' families, for the most part, probably don't realize this.

When hazards are identified by ASRS expert analysts, corrective action is implemented, and when the reports on that topic slow or stop, we know we've reduced risk. If we had a crystal ball, we'd see that a lot of those actions on the part of ASRS in response to safety reports probably result in real "saves." But there is no crystal ball, so we just keep going, knowing that ASRS probably produces the most valuable information and most effective results of any aviation program.

Michael Lenz is a Program Analyst in Flight Standards Service's General Aviation and Commercial Division.



Kenneth R. Kelley, a principal maintenance inspector at the Reno Flight Standards District Office, inspects one of the Mustang's *damaged oxygen tanks.*

Compressed Gas Is Not for Wimps

story and photos by H. Dean Chamberlain

Compressed gases are not for wimps. While working at the Reno "air races" this year, I saw proof why compressed gases are not for wimps. In fact, compressed gases are downright dangerous. A P-51 *Mustang* was severely damaged when its oxygen tanks exploded while being refilled. Because of any potential liability issues that may result from the explosion, I don't profess to know the facts of the accident, nor do I portray myself as an expert when dealing with compressed gases. I do have a working knowledge of compressed air (3,000 PSI tanks) used for Scuba diving and compressed gases used for welding. My knowledge can be summarized as knowing not to apply more pressure than the tank/s and connecting hoses or lines are rated for and always handling combustible gases and tanks very carefully.

As I understand the incident, the aircraft's pilot wanted to top off the *Mustang's* onboard oxygen tanks. In talking to him, he said he had enough oxygen for the proposed flight, but he decided to have the tanks filled. The contract oxygen service provider's oxygen cart, a collection of oxygen tanks plumbed to a common distribution manifold controlled by pressure

shut off valves and pressure regulators mounted on a wheeled cart, arrived and began filling the aircraft's oxygen filler port. At this point, the details become fuzzy.

What is known is as the *Mustang* sat in its pit, its oxygen tanks, there were more than one in the system, exploded while being filled. Fortunately, there were no serious injuries. I was told one aircraft ground crewman suffered a ringing in his ears.

The aircraft suffered major damage. The oxygen tanks are located in the aft fuselage. When they exploded, they ripped open both sides of the *Mustang's* fuselage just forward of the tail section. In addition, the exploding tanks and metal punctured the aircraft's hydraulic system and damaged some control cables. Hydraulic fluid then leaked out under the aircraft. I was told, because the fuselage skins blew upward, they directed the force of the explosion up away from anyone near the aircraft. Eventually, the *Mustang's* wings, engine, and other parts had to be removed so that the aircraft could be loaded on a flatbed semi-tractor trailer for the trip home.

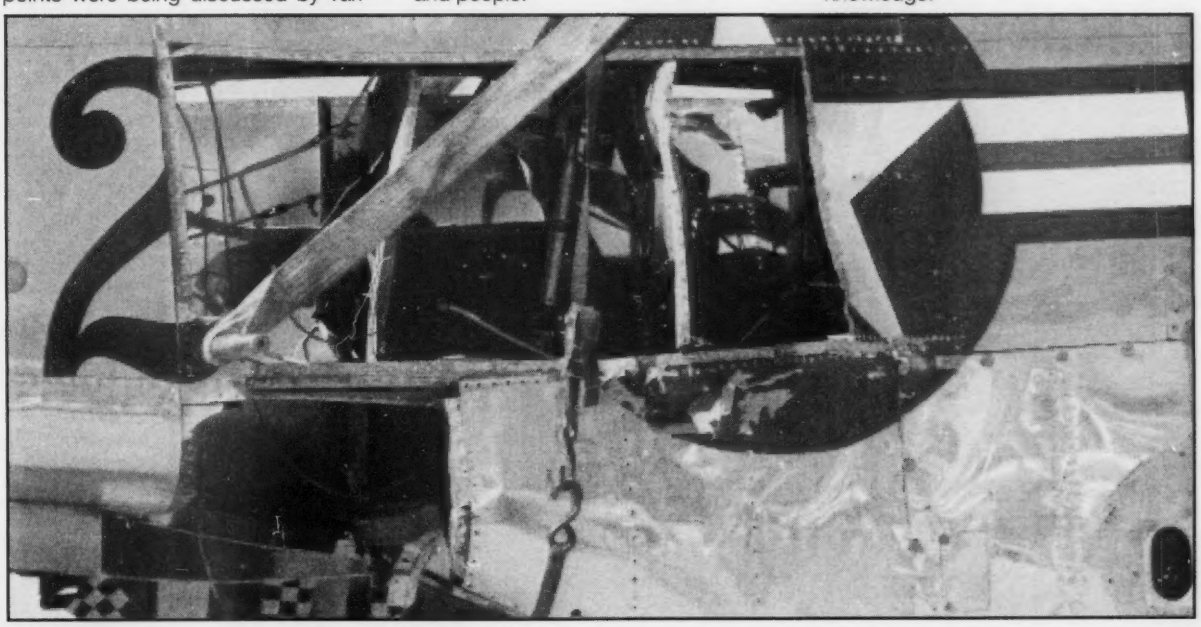
Although I don't know if an "official" investigation has determined the cause of the incident, the following points were being discussed by various people at the time of the incident. The *Mustang's* oxygen system was a low pressure system. Its maximum rated pressure was placarded at 450 pounds per square inch (PSI). I was told this oxygen system may have been the only low pressure system at the races. I was told the other aircraft oxygen systems on the ramp were rated up to 1,800 PSI. These systems are considered "high pressure" systems.

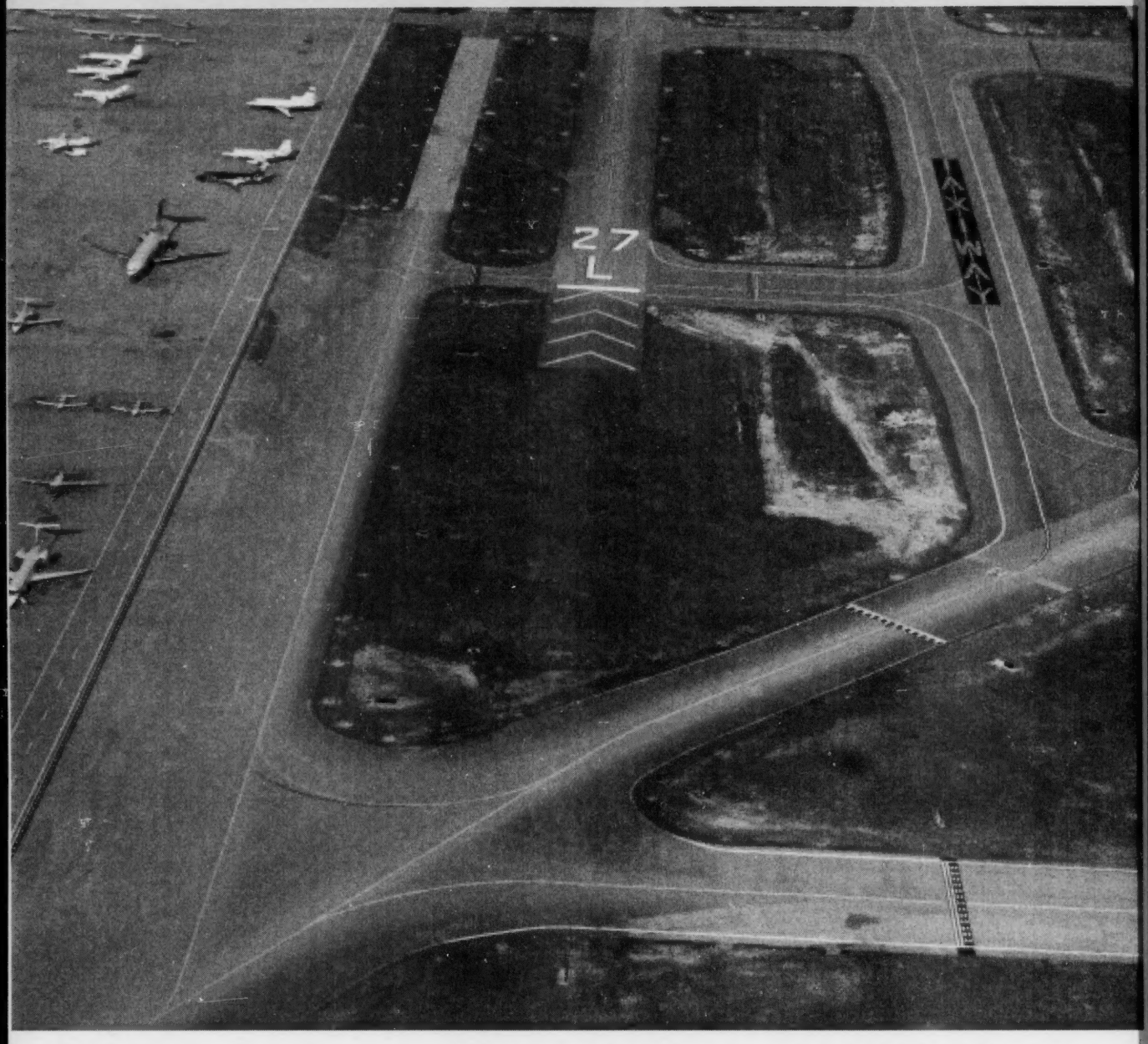
At issue is what caused the *Mustang's* oxygen tanks to explode? Were they filled with "high pressure" oxygen as some people speculated? Or, were they filled to some other lower pressure as per the aircraft's crew's instructions? In cases like this, I know the FAA aviation safety inspector who responded to the aircraft incident asked for the isolation of the oxygen cart so that its pressure regulator could be checked to determine its accuracy. This is normal procedure in such cases to try to eliminate or identify potential causes.

As a result of this incident, changes were made concerning how other aircrafts' oxygen systems could be refilled. The revised procedures require that oxygen systems be filled out on the ramp area away from the pits and people.

I think this incident brought up an important safety point. Because many aircraft operate with installed onboard oxygen systems and many pilots of non-pressurized aircraft may carry portable oxygen systems, I think this incident highlights the need for everyone involved with servicing aircraft oxygen systems to know and following the recommended safety requirements for handing pressurized gases. This means ensuring that the system and its tanks meet the appropriate Department of Transportation's or other recognized safety and inspection standards. That everyone involved in refilling installed and portable tanks knows how to refill the system or tanks. This includes knowing permitted pressures and quantities involved. It also means that portable systems be handled in a safe manner as recommended by their manufacturers to include how to carry, handle and safely store the tanks and related hoses and masks.

Although the incident involved oxygen, the same rules apply to other pressurized systems in aviation. From welding gases to high pressure struts to pressurized tires to even high pressurized hydraulic lines, high pressure systems can be potentially deadly if not treated with respect and system knowledge.





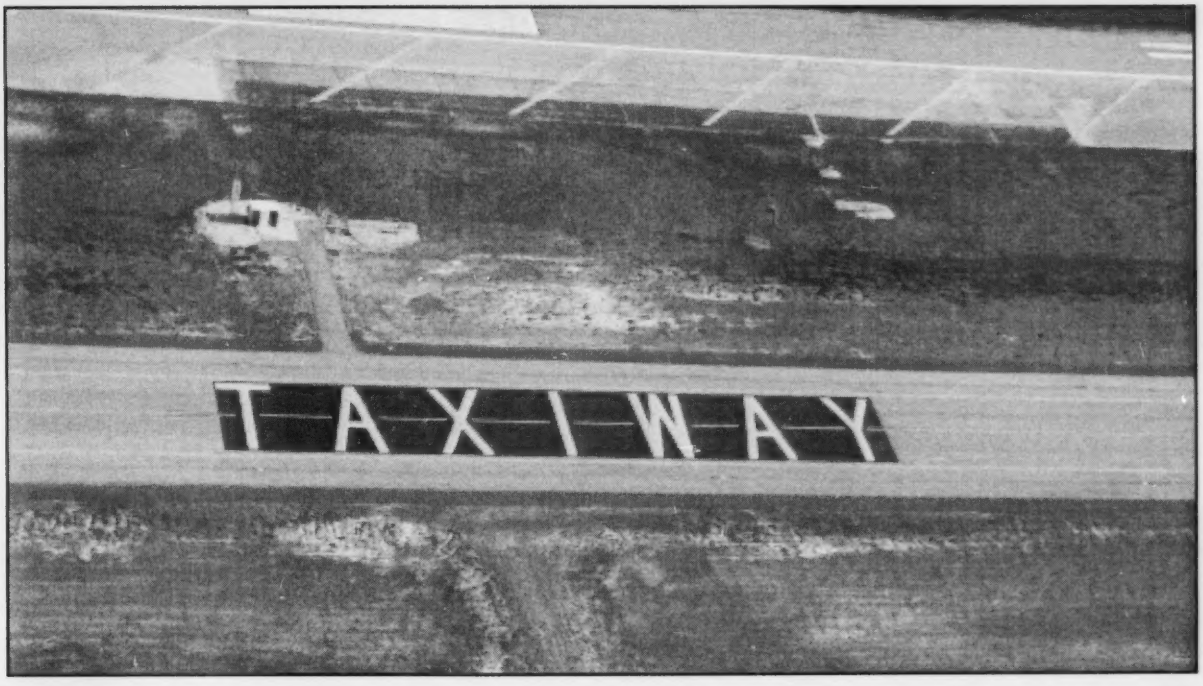
FAASTeam Discovers Safety Hazards at Palm Beach International

During a review of operations at Palm Beach International Airport (PBI), the FAA Safety Team (FAASTeam) Area 1 determined that a significant pattern had emerged. It was noted that the airport experienced 21 incidents where aircraft were cleared to land on a runway and incorrectly landed on taxiway "L". This taxiway is found between two runways and pilots are mistakenly landing on the taxiway instead of the runway.

The FAASTeam considers runway safety a priority and is taking steps to ensure future occurrences of this mistake do not occur. Meetings have been held with several groups including Air Traffic Control, Airport Management, Flight Standards Management, and local operators, and all are committed to prevention of future landings on taxiway "L" at PBI. An information campaign is underway to stop the confusion and educate pilots on runway markings and signage.

Identification and correction of these types of situations is one of the reasons the FAASTeam was created. Notifications are posted on <faasafety.gov> and other publications.

Taxiway "L" is located between Runways 9L/27R and 9R/27L. Taxiway "L" is now clearly marked to help prevent future errors.



Is FAA's Web-Based Technology Investment Justified?

FAA Administrator Reports Progress to Airmen

by Mike Wayda

The Federal Aviation Administration has made a huge investment in innovative technology and procedures to make same-day medical certification for pilots a reality. Just how effective were these efforts?

FAA Administrator Marion Blakey, speaking to an audience of pilots at the Experimental Aircraft Association's 2006 AirVenture® Fly-In at Oshkosh, Wisconsin, declared, "You wanted the Federal Air Surgeon to modify the medical certification system to reduce delays airmen were experiencing in the issuance of medical waivers. That's just what we did. We've been making changes incrementally for quite some time, and the IT [information technology] investment—handling these electronically—is paying off."

Administrator Blakey and senior FAA staff had a productive visit at the annual fly-in. Because of the Office of Aerospace Medicine's innovations to resolve the backlog in special issuance medicals, there were virtually no complaints on this usually hot topic at this year's "Meet the Administrator" session. The following excerpts are from the Administrator's remarks that pertained to certification:

"The changes we've made have reduced the average waiting time for a special issuance waiver from several months to 16 days. Now, averages are just that—an average—and some of you have likely waited longer than the average to get your certificate. That's because we do continue to see some very complex cases that require analysis and expert judgment.

"But more than 90% of the pilots who walk through the aviation medical examiner's door get their medicals on the spot. The other 10% now are looking at what's essentially a two-week wait. And that's as it should be. So, how did we do it?"

Reducing the Backlog

Working with the aviation community to identify ways to improve certification work flow, ideas were proposed, evaluated, and then enacted. "Specifically, we convened groups of FAA flight surgeons to process cases in the queue for review. This reduced the backlog immediately. Other groups will be convened whenever necessary to deal with future backlogs. We modified the system so that most cases can be reviewed electronically instead of manually. We also made it so that the regions can work cases that previously could only be worked by the Aerospace Medical Certification Division in Oklahoma.

"We expanded the aviation medical examiner assisted special issuance process that allows the AME to issue waivers for specific medical conditions. We increased it from 20 conditions to 35 conditions—renal cancer, melanoma, bladder cancer, heart attacks, bypass surgery, to name a few. We also actively pursued the EAA and other associations to encourage AMEs to participate in the special issuance process."

New Rules to Reduce Certification Intervals

"We didn't stop there. We started a rulemaking process that will propose to extend the interval for first-class medical certification from six months to one year. For third-class medicals for pilots under 40—from three years to five years. These two interval changes are consistent with the changes that ICAO [International Civil Aviation Organization] is making. It is estimated that these two changes will reduce annual applications by 75,000 and therefore provide better, quicker service to others."

"Better Than 30 days"

Because medical certification is an issue that affects every pilot, the aviation community is greatly interested in getting speedy results. Blakey pointed out that while the FAA certifies about 450,000 pilots per year, "the goal is to get better than 30 days and maintain it. We're there. But I promise you we're pushing to get better."

Mike Wayda is the Editor of the Federal Air Surgeon's Medical Bulletin. *This article was originally published in the 2006-3 issue of the* Federal Air Surgeon's Medical Bulletin.

RUNWAY SAFETY CORNER

Situational Awareness

Test Your Runway Safety Knowledge!

from the Office of Runway Safety's Web site

*A **runway incursion** is "any occurrence in the airport runway environment involving an aircraft, vehicle, person, or object on the ground that creates a collision hazard or results in a loss of required separation with an aircraft taking off, intending to take off, landing, or intending to land."*

In the *FAA Flight Plan 2007-2011*, the identification and reduction of runway incursion collision risks is one of its major safety objectives.

Situational awareness at airports is one way to reduce the risk of runway incursions resulting from errors by pilots, air traffic controllers, pedestrians, vehicle operators, and mechanics conducting aircraft taxi operations. The following questions are to test your knowledge of situational awareness. After you take the test, you will find the references and brief explanations of answers to these questions.

Questions:

1. The airport layout along with the runway and taxiway names can be found on a(n) _____.

2. If you become uncertain of your location on the airport movement area, you should _____.

3. If you are unfamiliar with the taxi routes at an airport, you should ask for _____.

4. As you are crossing a runway, you notice that an aircraft at the approach end of the runway has turned on its landing lights. This means this aircraft has _____.

Chose the correct answer:

A. progressive taxi instructions

B. airport diagram

C. received a takeoff clearance

D. vacate any runway you are occupying or stop the aircraft, if not on a runway, and contact ATC.

Further explanation of answers to the four questions can be found in: the "Pilot's Guide to Runway Safety" Booklet, Advisory Circular 91-73A, "Part 91 and Part 135 Single-Pilot Procedures During Taxi Operations," and Advisory Circular 120-74A, "Parts 91, 121, 125, and 135 Flightcrew Procedures During Taxi Operations." These publications can be found on FAA's Web site at <www.faa.gov>.

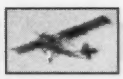
The following are brief explanations of each answer.

1. The airport layout along with the runway and taxiway names can be found on an (B) airport diagram.

You should plan airport surface movement the same way you plan for other phases of your flight. Airport diagrams are one of the tools that you can use for this planning—they provide the layout of the airport, names of runways and taxiways, and show the location of major facilities on the airfield, which typically include the terminal(s), hangars, ramps, control tower (if applicable) and the fire station. You can use these diagrams to chart your anticipated taxi route and to review the taxi instructions once you receive them from ATC.

Airport diagrams can be obtained from various sources, including:

- FAA's National Aeronautical Charting Office (NACO) Web site: <http://naco.faa.gov>, click on Aeronautical Charting, then on Free Online Products



- *Airport/Facility Directory* (A/FD)
- *Instrument Approach Plates* (IAP)
- Direct User Access Terminal Service (DUATS)
- The Office of Runway Safety Web site: <www.faa.gov/runwaysafety/>

References:

- *Runway Safety Booklet*, Page 5
- AC 91-73A, Pages 3-4, Paragraph 8.b.(1).(a), Paragraph 8.b.(2).(b), and 8.b.(2).Note
- AC 120-74A, Pages 3-4, Paragraph 6.b.(1).(a), Paragraph 6.b.(2).(b) and 6.b.(2).Note

2. If you become uncertain of your location on the airport movement area, you should (D) ***vacate any runway you are occupying or stop the aircraft if not on a runway, and contact ATC.***

Pilots can become disoriented on the airfield for many reasons including poor visibility or distractions in the cockpit. If you become disoriented on the airfield, your first concern must be clearing any runway. Once your aircraft is stopped, the next step is to contact ATC and advise them of your situation. By providing ATC with information about your position such as signs, markings, and landmarks, they can help you determine your location and provide revised taxi instructions to get you to your destination on the airfield.

References:

- *Runway Safety Booklet*, Page 9, yellow "tip" box
- AC 91-73A, Pages 5, Paragraph 8.c.(2)Caution
- AC 120-74A, Page 5, Paragraph 6.c.(2)Caution

3. If you are unfamiliar with the taxi routes at an airport, you should ask for (A) ***progressive taxi instructions.***

If you want more detailed taxi instructions because of visibility conditions, as a personal preference or for any other reason, you can request progressive taxi instructions from ATC. When providing you with progressive taxi instructions, ATC will take you "step-by-step" through your taxi route. This should ensure you do not cross any taxiways or runways until they are clear for you to cross.

If you have been issued "taxi to" instructions from ATC, you may cross intersecting runways and taxiways as you taxi to your destination on the airfield (take-off runway or gate), provided you did not receive instructions from ATC to "hold short" of any of them. Even though it is an approved procedure to cross these runways and taxiways without explicit permission from the tower, many pilots feel uneasy doing so and prefer more guidance. Requesting progressive instructions may make you feel sure that you do have permission to cross them. Even when you are cleared to cross, scan the full length of the runway and the approaches before entering or crossing any runway.

References:

- *Runway Safety Booklet*, Page 9, yellow "tip" box
- AC 91-73A, Page 9; Paragraph 8.f.(5)
- AC 120-74A, Page 10; Paragraph 6.g.(5)

4. As you are crossing a runway, you notice that an aircraft at the approach end of the runway has turned on its landing lights. This means this aircraft has (C) ***received a takeoff clearance.***

Illuminating aircraft lights can make your aircraft more conspicuous and can "tell" other pilots, ATC, and others on the airfield your current situation. Different combinations of illuminated lights tell others that your aircraft has its engine(s) on, is taxiing, is crossing a runway, entering the departure runway for position and hold, that you have received your take-off clearance (at a towered airport), or that you are beginning your takeoff roll (on an untowered airport). These various types of lights have different functions—some help with navigation of the aircraft while others convey information.

When your aircraft enters the departure runway for position and hold, all aircraft lights should be illuminated except for the landing lights. Once you receive your takeoff clearance or begin your takeoff roll, you should turn your landing lights on as an indication to other pilots, ATC, and ground personnel that the aircraft is moving down the runway. Note: Use of lights in this manner is an advisory procedure, so not all pilots may adhere to this guideline.

References:

- *Runway Safety Booklet*, Page 12, last bullet.
- *Runway Safety Booklet,* Page 13, Lighting Table
- AC 91-73A, Pages 12-13, Paragraph 10.b.(4).Note and 19.b.(5)
- AC 120-74A, Page 15, Paragraph 8.b.(5) and Paragraph 8.b.(5).Note

Aviation Maintenance Alerts

Unison: UREM40E; Defective Spark Plugs; ATA 7421

(Submitters rightfully are concerned with noting their primary concerns, less so for reading sequence. Changing only the sequence of otherwise unaltered sentences can most certainly effect the meaning and intent of the writer, necessitating lots of punctuation "flies" for proper citation. The alternative method is this preemption by the Alerts editor.)

A repair station provided the following description pertaining to a Cessna 172 and Lycoming O-360-A4M combination. "During the installation and operational check of two new Unison/Slick magnetos—plus harness and eight spark plugs—to correct a hard starting discrepancy, the engine had a 200-300 RPM magneto drop on the L/H magneto. *[I]* trouble shot the ignition system using a cold cylinder tester and determined one of the eight new Unison spark plugs (P/N UREM40E) was defective. *[I]* removed the defective plug and replaced it with a known, good plug, and the engine's operational check was good.

"There seems to be a trend of bad spark plugs being shipped by Unison. This is not the only time this problem has been found with this *[specific]* product. All the spark plugs were replaced at the time of the magneto and harness change to give our customer a long and trouble free service life. For the additional cost of $127.60 one would expect *[this to be the case]*, however, we were faced with lost productivity—having to spend time trouble shooting a system that had all new parts. The customer *[as result]* was delayed. It *[also]* took time and effort to return the part for credit. It cost additional shipping charges to return the part and obtain a replacement—all of this because of poor quality control.

Challenger: K&N; Air Filter Missing Mesh Material; ATA 7160

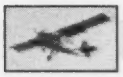
The following defect report from a repair station tech concerns a Cessna 172R hosting a Lycoming IO-360L2A. "This *[product]* is an air filter bearing the 'K&N' name and is sold by Challenger aviation products *[who holds the supplemental type certificate]* for installation on this aircraft *(P/N: CPE-1173)*. I have removed five of these filters from service [in addition to the one in this report] having the same damage with similar time in service. The wire mesh enclosing the cotton fiber material is tearing and exposing the filter material. Some of the wire mesh and filter material *[has been found]* missing—assumed to have been ingested by the engine. Challenger filters currently eliminate the requirements set forth in AD84-26-02 dealing with ingestion of paper air filters. Judging by the results I have seen from this and other filters I have removed from service, these filters pose a greater risk of ingestion and *[resultant]* engine failure than paper filters." Part Total Time: 293.4 hours.

Lone Star: LS03-05002; DC Converter Failure; ATA 2433

A submission from an air taxi operator pertains to a Piper PA18-150 *Super Cub*. "A new converter was installed per Lone Star Aviation's instructions: the diagrams and installation was approved with a 337 *(field approval)*. The converter failed in less than 10 seconds. Out of five converters, four in aircraft and one on the test bench, all have failed *(P/N LS03-05002)*." Part Total Time: 0.003 hours *(nearest thousandth....)*.

Ameri-King ELT: AK450; Intermittent Operation; ATA 2562

An unidentified source writes, "An ELT transmitter was removed *[from a Mooney M20R aircraft]* during an annual *[inspection]* for battery replacement and testing. Upon testing *[with new batteries]* the unit on/off was intermittent and remote operation was *[also]* intermittent. This unit is approximately seven years old. *[I have observed a...]* trend in failures on this make and model of ELT. *[I]* suspect internal deterioration of component security." *(Two additional and similar discrepancies on this model ELT were provided by the same writer, one with two years of service, and the other with seven years of service. SDRS reveals 40 entries for the AK450 since 1995: or approximately 3.3 per year—as per the data base. How many thousands are and/or have been in use versus real total failures in the same time period would generate some very useful numbers—but that is a dream.)* Part Total Time: 532.0 hours.



Thrush: S2R; In-flight Door Deformation; ATA 5210

The submitting mechanic writes, "This aircraft was originally equipped with a Pratt & Whitney R-1340, S-3H1 engine and a Hamilton Standard 12D40-6101A-12 propeller. This combination was removed and a Pratt & Whitney R-1340 S3H1G geared engine and a Hamilton Standard 23D40-7035A-9 propeller were installed. Increased airspeed resulting from this combination caused the right cabin door to bulge slightly. Pilot concerns about carbon monoxide entrance into the cabin were confirmed with the use of CO detectors. The right cabin door was removed and sent to a Thrush service center to be modified to the two-latch configuration found on turbine aircraft. Additional monitoring for carbon monoxide showed no further problems." Part Total Time: (unknown).

Cessna: 560XL; Frayed Elevator Trim Cable; ATA 2731

A technician for a repair station states, "During a phase 1-4 inspection the elevator trim cable assembly *(P/N 6660001-34)* was found to be frayed where it passes through the horizontal stabilizer. The cable appears to have been installed properly and it does not look as if it was damaged during installation. A report has been submitted to Cessna...." *(A search of the SDRS data base yields 33 responses to the base number 6660001—almost all Cessna cables. At least five additional reports of frayed elevator trim cables can be found on this same type aircraft. Their times ranged quite close: from 5,253 to 5,558 averaging 5,427 hours for six aircraft. Additional inquiry confirms the second cable shown, P/N 6660001-33, has also been found frayed. Both of these cables are of stainless steel composition.)*

Honeywell: TFE-731-4R; Noncontained Turbine Failure; ATA 7550

A submitter describes an incident occurring to a Cessna 650 jet. "The aircraft was level at 38,000 feet when the crew reported they heard an audible 'thud'. Upon scanning the cockpit instruments the L/H engine was observed to be shutting down (non-commanded). The aircraft landed without *[further]* incident. Initial inspection revealed the L/H engine experienced a non-contained failure in the area of the turbine section. The failed engine was removed from the aircraft and shipped to Honeywell (Phoenix) for an investigative teardown." *(This part number generates 27 entries from the SDRS data base since 1993.)* Part Total Time: 1,302.6 hours.

Beech (Raytheon): 58; Chafing Fuel Line; ATA 2820

A repair station mechanic submitted this defect report. "While retracting and extending the landing gear for adjustment of a drooping inboard main wheel door, abnormal noise and vibration *[was noted at mid-cycle]*. Further investigation found the R/H main landing gear retract rod assembly chafing on the wheel well's fuel cross feed tubes (P/Ns 002-920000-49 and 002-920000-51). Visual inspection of these fuel tubes found the chafing to be negligible. [I] repositioned and secured the fuel tubes as required for clearance with the retract rod during retraction/extension operations. A one time inspection of this area is recommended *[to prevent]* chafing and subsequent fuel leakage." *(Aircraft total time: 187.4 hours. The SDRS data base reflects two similar discrepancies.)* Part Total Time: 187.4 hours.

The Aviation Maintenance Alerts provide a common communication channel through which the aviation community can economically interchange service experience and thereby cooperate in the improvement of aeronautical product durability, reliability, and safety. This publication is prepared from information submitted by those who operate and maintain civil aeronautical products and can be found on the Web at <http://www.faa.gov/aircraft/safety/alerts/aviation_maintenance/>. Click on "Maintenance Alerts" under Regulations and Guidance. The monthly contents include items that have been reported as significant, but which have not been evaluated fully by the time the material went to press. As additional facts such as cause and corrective action are identified, the data will be published in subsequent issues of the Alerts. This procedure gives Alerts' readers prompt notice of conditions reported via Malfunction or Defect Reports, Service Difficulty Reports, and Maintenance Difficulty Reports. Your comments and suggestions for improvement are always welcome. Send to: FAA; ATTN: Aviation Data Systems Branch (AFS-620); P.O. Box 25082; Oklahoma City, OK 73125-5029.

SPECIAL AIRWORTHINESS INFORMATION BULLETIN

Aircraft Certification Service
Washington, DC

U.S. Department of Transportation

Federal Aviation Administration

CE-07-06
October 27, 2006

http://www.faa.gov/aircraft/safety/alerts/

This is information only. Recommendations aren't mandatory.

Introduction

This Special Airworthiness Information Bulletin (SAIB) alerts you of an airworthiness concern where you could have **alcohol (ethanol or methanol) present in the automobile gasoline on any General Aviation airplane** type certificated (TC) to use automobile gasoline or with automobile gasoline supplemental type certificates (STCs).

Background

Fuels have to conform to a specification in order to be approved for use in type-certificated aircraft. The American Society for Testing and Materials (ASTM) developed specifications for automobile gasoline as well as aviation gasoline. These specifications are ASTM D 910 and ASTM D 6227 for aviation gasoline and ASTM D 439 or ASTM D 4814 (latest revision) for automobile gasoline.

Automobile gasoline STCs were developed using fuel blended to ASTM specification D 439 or D 4814. The Environmental Protection Agency (EPA) regulations require the addition of oxygenates in some regions of the country, as do some local regulations. The most widely used oxygenates are alcohol (ethanol or methanol), Methyl Tertiary Butyl Ether (MTBE), and Ethyl Tertiary Butyl Ether (ETBE).

There is an increasing use of ethanol in automobile gasolines. The Energy Policy Act of 2005 replaces the 2 percent oxygen standard with the Renewable Fuels Standard (RFS), which requires an ever-increasing amount of ethanol and biodiesel to be used across the country through 2012. Ethanol will continue to see increasing use in the United States.

There are two primary sources of automobile gasoline STCs for general aviation aircraft: the Experimental Aircraft Association (EAA) and Petersen Aviation. Neither the EAA STCs, nor Petersen Aviation STCs, allow the use of automobile gasoline containing alcohol (ethanol or methanol). Automobile gasolines containing MTBE or ETBE are acceptable.

Automobile gasoline containing alcohol is not allowed to be used in aircraft for the following reasons:

- The addition of alcohol to automobile gasoline adversely affects the volatility of the fuel, which could cause vapor lock.
- Alcohol present in automobile gasoline is corrosive and not compatible with the rubber seals and other materials used in aircraft, which could lead to fuel system deterioration and malfunction.
- Alcohol present in automobile gasoline is subject to phase separation, which happens when the fuel is cooled as a result of the aircraft's climbing to higher altitude. When the alcohol separates from the gasoline, it may carry water that has been held in solution and that cannot be handled by the sediment bowl.

- Alcohol present in automobile gasoline reduces the energy content of the fuel. Methanol has approximately 55 percent of the energy content of gasoline, and ethanol has approximately 73 percent of the energy content of automobile gasoline. The greater the amount of alcohol in the automobile gasoline, the greater the reduction in the aircraft's range.

Recommendation

We recommend that you do the following about operating airplanes using automobile gasolines:

1. Use automobile gasoline that conforms to the specifications listed in the airplane flight manual or automobile gasoline STC flight manual supplement:
    a. Verify the fuel has the proper octane rating
    b. Verify the fuel has the allowable oxygenates:
        i. Automobile gasolines containing MTBE or ETBE are acceptable.
        ii. Automobile gasolines containing alcohol (methanol or ethanol) are not acceptable, unless specifically approved by the TC or STC.

2. If you are unsure about the presence of alcohol in your automobile gasoline, the following test can be performed:
    a. Using a glass or chemical-resistant plastic (such as TPX) container, mark ten equally spaced volumes. A graduated cylinder is ideal; however, a non-tapered glass jar, such as a large (quart) olive bottle, will work.
    b. Add one part water (approximately 100 ml) into the container, fill to the first mark, and then add nine parts (approximately 900 ml) of automobile gasoline, fill to the top mark. Shake thoroughly, let stand for 10 minutes or until automobile gasoline is again bright and clear. Record the apparent level of the line between the automobile gasoline and water.

3. If alcohol is present in the automobile gasoline, the water will absorb it, and the amount of water will appear to increase, indicating the automobile gasoline should not be used in the aircraft. However, if the water level remains the same, no alcohol is present in the automobile gasoline, and it can be used in the aircraft.

4. If you cannot obtain automobile gasoline that conforms to the specifications listed in the airplane flight manual or automobile gasoline STC flight manual supplement, use aviation gasoline conforming to ASTM specification D 910.

For Further Information Contact

Peter L. Rouse, Aviation Safety Engineer, Small Airplane Directorate; phone: (816) 329-4135; email: peter.rouse@faa.gov

Limits – On Ourselves as Pilots and the Aircraft We Fly

by Jim Trusty

I think it is fair to say that most of us don't do enough to stay current, proficient, and ahead of the airplane we fly. Is it possible that we, as pilots, don't know everything we should about our chosen mode of transportation?

Let's take a short flight and use up about half a mythical day in your life as a pilot. Let's see just how ready you are to take this trip. Good night's sleep? Medical up to date? Current in your craft? Weight and balance completed? Complete walk-around with a checklist? Charts, maps, facility directory, flight plan, alternate planning, weather-everything checked and okay? How do you feel flying this airplane on this trip TODAY? Ever use the old axiom that if any three things go wrong before takeoff time, no flight?

I see far too many mistakes occurring on simple flight reviews and instrument proficiency checks with the pilots I fly with each year. It really boils down to not using what the aircraft has to offer. We look for the easiest way to get from "A" to "B" and generally that works. When we read of an accident or incident, the first thing we think is, could the pilot have prevented this from happening? And in most cases, sadly, the answer is yes. Given the time and the initiative, the routine required, proper procedure, checklist, and the rules and regulations complied with, most pilots can fly out of most things they fly into.

What do we do wrong? At every level of aviation, we overstep the limits of our training, experience, and aircraft expertise on almost a daily basis. Don't think so? Answer these few simple questions. Did you ever fly pilot in command in an aircraft you had never flown before? Have you ever flown with no sleep during the previous 24 hours? Have you ever flown when you were sick enough to be in bed? On medication? Worried? Tired? Problems at home? Medical run out? Flight review lapsed? Not instrument current? No charts or approach plates on board? Low fuel? Aircraft out of annual? Aircraft insurance lapsed? Have you flown an airplane that you knew was mechanically unsound? Have you avoided IFR conditions because you were uncomfortable flying in the soup?

Somewhere in this never ending list, I touched you...and you know I did. Your answer to me would probably be, "Well, so what. Nothing happened...either time."

No one has to exceed these limits, legally or ethically. No one should fire you because you turned down a flight. No pilot should want or need to fly beyond their capabilities. No one else can set your limits and you need not share what they are with anyone. A good flight instructor or check pilot will notice them and will comment on them. They should even have some remedies to share with you. What we are really saying is: "Don't out fly your ability and never exceed your aircraft's capability."

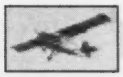
I'm often kidded when I make the statement that "anyone can fly," but I still believe that is true. To qualify it, I guess I should add "with proper training." We can't limit ourselves out of a way of life. Some get into aviation and absolutely hate it. If you see that happening, next you will witness a shutdown in the learning process and this will assist them in their thinking that it is all "just too hard." Come on! For those of us who fly on a regular basis, this flying stuff is really easy. It may be that we came to this belief because of our love of flying, but the truth is that it does take a modicum of dedication to stay in a continuous training cycle, learning new airplanes, systems, and maneuvers as we pass from one level to the next.

No airplane has yet been invented that man cannot master—in time. Man was meant to fly and airplanes were meant to be flown. When I hit a snag in a training program and have another student or pilot who has, I visit Sun 'n Fun or Oshkosh or any great flying museum and look at what has already been flown. Looking at these early aircraft, it never ceases to amaze me how they got someone to jump in a certain bird for its very first flight. You realize that most humans were right when they thought that the Wright brothers were crazy to attempt flight in the first place. When you see some of the stuff we won wars with—flown by pilots with less than 10 hours experience, no manuals, no instruction, and overloaded with weaponry—it really makes what we are trying to fly this year seem pretty simple and it gives us a better understanding of aviation dedication on the part of those flyers.

Don't get the idea that I am picking on any level of aviation. The idea for this article came when an airline captain asked me to take him and his son up in a Cessna 172 because he didn't feel comfortable in the airplane. Smart Captain, I thought. I told him that was the same reason I let him fly the 757 to Hawaii when we first met.

In closing, let's revisit the title of this article. Are we overstepping the limits of our training, experience and aircraft expertise? Do we admit that we are human and have feelings on certain days that could have a negative effect on our performance? It's really nice when you step up to a crew-type situation so that you can swap duties, but until that happens in your career, know your limits at all times and know the airplane you are going to fly. Limits are built in for our protection, so understand them.

Jim Trusty, ATP/CFI, was the 1997 National Flight Instructor of the Year and is an active pilot/instructor in Smyrna, Tennessee.



• Going Through a Phase or Was That a Phrase?

Please proofread your article, "What's Up Doc?" that appeared in the November/December 2006 issue. I assume you mean to say phrase yet you used phase five times.

Is this publication sent to the pilots?

Sandra K Parker
Fort Worth Airspace and Procedures Office

Thanks for pointing out my mistake. Yes, I did mean phrase, and that is what I and our other proofreaders overlooked. It's that old communications problem of readback/callback. The mind sees what it knows should be there. We can only promise to be more careful in the future.

As to the availability of the magazine, the magazine is available to pilots through U.S. Government Printing Office subscription, on the Internet, and through the FAA's safety program (the FAASTeam as it is called now).

FAA AVIATION NEWS welcomes comments. We may edit letters for style and/or length. If we have more than one letter on the same topic, we will select one representative letter to publish. Because of our publishing schedules, responses may not appear for several issues. We do not print anonymous letters, but we do withhold names or send personal replies upon request. Readers are reminded that questions dealing with immediate FAA operational issues should be referred to their local Flight Standards District Office or Air Traffic facility. Send letters to H. Dean Chamberlain, Editor, FAA AVIATION NEWS, AFS-805, 800 Independence Ave., SW, Washington, DC 20591, or FAX them to (202) 267-9463; e-mail address:

Dean.Chamberlain@faa.gov

• Permission Granted

[The first part of the following e-mails was sent directly to Mike Gaffney, author of the "Modern Aircraft Electrical Systems" article, which appeared in the November/December issue.]

I read with considerable interest your article in the November/December issue of *FAA Aviation News*. The Sioux Falls Composite Squadron of the South Dakota Wing of Civil Air Patrol has recently acquired a 2006 Cessna 182T NAVIII as our squadron aircraft. I was wondering if I could use the information in the article to prepare a short training session on electrical system issues in these new airplanes. Naturally all credit for the information would be extended to you as would a copyright notice.

As a CAP member and private pilot, I believe this information to be extremely valuable to everyone who pilots or crews these airplanes. Please let me know your feelings on this issue as this is extremely important information, and may at some point save a life or two.

2Lt. Walt Marty
Deputy Commander
Communications Officer
Sioux Falls Composite Squadron

The Cessna Pilots Association would like permission to reprint the article, "Is Your Aircraft Winterized?" from the September/October edition.

Kim Huntington
Cessna Pilots Association

Thank you both for asking to use articles from the FAA Aviation News. *We appreciate your interest.* FAA Aviation News' *policy is that, unless an article is copyrighted by its author or noted as coming from another publication, it is considered public domain. This means that it may be used in another publication. We do ask that you give appropriate credit to the* FAA Aviation News *magazine.*

It's always nice to know that our readers find articles in our magazine useful.

• Online Training

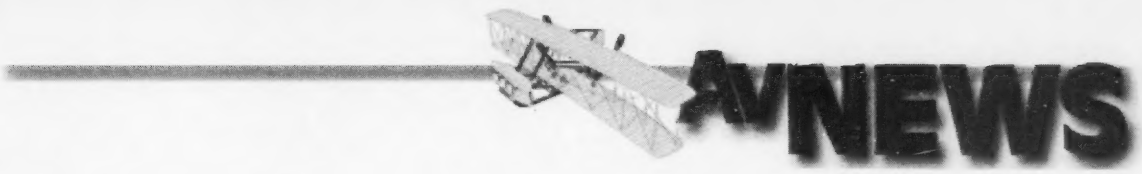
In a past issue of the *FAA Aviation News* magazine, you published an article about the online training that is available through the FAA Web site. I can't find my copy of that issue and was wondering if you would repeat where the Web site is. I am especially interested in the airspace training regarding the special use airspace.

Cameron Manther
via Internet

There are three ways to find the online training course offered by the FAA. You can go to FAA's main Web site at <www.faa.gov> and click on "safety." Choose "Online Training for Pilots" and it will take you to the FAA Safety Team's (FAASTeam) Web site where you can select the category of the topic.

The second way to find these courses is to go directly to the FAASTeam's Web site at <www.faasafety.gov> and click on "Online Aviation Learning Center, then click on "Online Courses" and "browse the course catalog. And last, but not least, the quickest way is to go to <http://www.faasafety.gov/gslac/ALC/courses_tableofcontents.aspx>. This will take you directly to the course catalog.

For the course on special use airspace, you would go to the airspace category. The course offered is intended to help general aviation pilots, who intend to fly in or near restricted areas—especially around Washington, DC—understand the complexities of the stricter airspace rules and reduce violations of restricted airspace.



NEW PASSPORT RULES FOR AIR TRAVEL

On November 22, 2006, the U.S. Department of Homeland Security (DHS) and U.S. Department of State announced the official requirement for citizens of the United States, Canada, Mexico, and Bermuda to present a passport to enter the United States when arriving by air from any part of the Western Hemisphere beginning January 23, 2007.

"The ability to misuse travel documents to enter this country opens the door for a terrorist to carry out an attack. We can not continue to allow loopholes that could facilitate access to the United States through false claims of citizenship or fake identities," said DHS Secretary Michael Chertoff. "This initiative strengthens our border security by designating verifiable secure documents that may be used at our air ports of entry."

The travel document requirements make up the departments of State and Homeland Security's Western Hemisphere Travel Initiative (WHTI). This change in travel document requirements is the result of recommendations made by the 9/11 Commission, which Congress subsequently passed into law in the Intelligence Reform and Terrorism Prevention Act of 2004. The Western Hemisphere Travel Initiative requires all citizens of the United States, Canada, Mexico, and Bermuda to have a passport or other accepted document that establishes the bearer's identity and nationality to enter or re-enter the United States from within the Western Hemisphere.

By limiting the types of documents presented will result in a more efficient border. There are more than 8,000 different state and local entities in the U.S., which issue birth certificates and driver's licenses. Currently, a CBP Officer needs to assess the authenticity of each birth certificate and license, regardless of when or where it was issued. The challenge at the borders is how to assess individual travelers, based on the documents they present, without significantly slowing the processing time for admission into the United States.

CBP Officers intercepted more than 75,000 fraudulent documents in FY2005 and apprehended over 84,000 individuals at the ports of entry trying to cross the border with fraudulent claims of citizenship or documents.

The only acceptable alternative documents to a passport for air travel will be the Merchant Mariner Document (MMD) and the NEXUS Air card. The MMD or "z-card" is issued by the U.S. Coast Guard to U.S. Merchant Mariners and the NEXUS Air card is issued to citizens of Canada and the United States, lawful permanent residents of the United States, and permanent residents of Canada who meet certain eligibility requirements. The NEXUS Air card may only be accepted when used in conjunction with the NEXUS Air program. The MMD card may only be accepted when used on official business by U.S. Citizen Merchant Mariners. Members of the United States military, when traveling on official orders, may continue to present their military ID and orders for entry.

A separate proposed rule addressing land and sea travel will be published at a later date proposing specific requirements for travelers entering the United States through land and sea border crossings. As early as January 1, 2008, U.S. citizens traveling between the United States and Canada, Mexico, Central and South America, the Caribbean, and Bermuda by land or sea will be required to present a valid U.S. passport or other documents as determined by the Department of Homeland Security. While recent legislative changes permit a later deadline, the Departments of State and Homeland Security are working to meet all requirements as soon as possible. Ample advance notice will be provided to enable the public to obtain acceptable documents for land and sea entries.

Those wishing to view the final rule may visit <www.dhs.gov> or <travel.state.gov>. The rule was published in the November 24, 2006, *Federal Register*, where it can be viewed at <www.regulations.gov>.

FAA ANNOUNCES NEW WEATHER TOOL

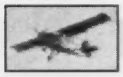
During a speech to the Aero Club of Washington D.C. FAA Administrator Marion C. Blakey announced the imminent arrival of a new weather tool for prediction and detection of icing conditions. The tool, Current Icing Product Severity (CIP Severity), will become fully operational in two months or less. The general aviation community has been eager to use this product as an operational tool for several years.

CIP Severity combines observations from satellites, radar, surface, lightning networks, and pilot weather reports with model output to provide a detailed, hourly, three dimensional diagnosis of in-flight icing conditions and potential for super cooled liquid droplets. The CIP Severity product is not yet fully operational and, as such, is not yet authorized for operational use. CIP Severity can be found at http://aviationweather.gov/exp/cip/>.

SPECIAL NOTICE TO ATLANTA SECTIONAL, TERMINAL AREA (TAC), AND FLYWAY CHARTS USERS

The 77th edition of the Atlanta Sectional and the 74th edition of the Atlanta TAC/Flyway charts have been reprinted to depict the revised Atlanta Class B Airspace as follows:

"Lowering the floor from 6,000' to 5,000' MSL in two areas; east and



west of the Hartsfield-Jackson Atlanta International (ATL) airport between the 20 NM and 25 NM arcs."

The 74th edition of the Atlanta TAC/Flyway charts have been reprinted to depict the revised Atlanta Class B Airspace as follows:

"Changing all ATL VORTAC radial bearings by -2 degrees."

These replacement copies of the Atlanta Sectional and TAC/Flyway will have a blue dot along the top edge of the front panel. Previously issued copies (without the blue dot) should be destroyed immediately.

The 78th edition of the Atlanta Sectional and the 75th edition of the Atlanta TAC/Flyway are scheduled for publication on March 15, 2007.

Users who purchased their chart from an agent may obtain an updated chart from their point of purchase at no additional charge.

For more Special Notices, consult the National Aeronautical Charting Office's Web site at <www.naco.faa.gov>.

CESSNA DELIVERS FIRST CITATION MUSTANG

On November 22, 2006, Cessna delivered the first production *Citation Mustang* to Mustang Management Group (MMG) according to a company press release. Cessna also received a production certificate (PC) for the *Mustang* allowing the company to produce, flight test, and grant airworthiness certificates for the aircraft. This makes the *Mustang* the first of the new class of very light jets to receive full FAA certification.

"All of us at Cessna are ecstatic to have these two significant milestones occur in one day—the delivery of the first *Citation Mustang* and the awarding of the FAA production certificate," said Cessna CEO Jack Pelton. Pelton continued "Cessna and the FAA have been working together for months,

Cessna photo

using our vast jet-building experience as a foundation, and developing new, advanced production and tooling systems to ensure an efficient ramp-up to full production."

The *Mustang*, which was featured in the November/December issue of this publication, has a top speed of 340 KTAS, a range of 1,150 nautical miles (with NBAA IFR reserves), and a service ceiling of 41,000 feet. Cessna expects to produce 40 *Mustangs* during 2007 with the first ones reaching regular service in early 2007.

NTSB SEVERE WEATHER ALERTS FOR PILOTS

On October 1, 2006, the National Transportation Safety Board (NTSB) issued a safety alert to pilots warning them to actively maintain awareness of severe weather along their entire route of flight. The Safety Board identified several accidents in which in-flight encounters with severe weather appear to be causal or contributory. These accidents all involved aircraft operating under instrument flight rules (IFR) and in contact with air traffic controllers.

"Severe weather avoidance is the responsibility of the pilots," said NTSB Chairman Mark V. Rosenker. "We at the Board feel that it is imperative to reiterate the seriousness of this task during flight."

Safety Board investigations have shown that pilots were either not advised about areas of severe weather ahead or were given incomplete information. The primary job of ATC is to keep IFR aircraft separated. When their workload permits, controllers are also required to provide additional services, such as weather advisories and, upon pilot request, suggested headings to avoid radar-displayed precipitation.

In this Safety Alert, the NTSB presents scenarios in which pilots did not take full advantage of air traffic services and provides information that every pilot should know when operating in the air traffic system and near severe weather.

The entire safety alert, which contains examples of recent NTSB accident investigations, is found on the Board's Web site at <http://www.ntsb.gov/alerts/alerts.htm>.

Editor's Runway

from the pen of H. Dean Chamberlain

START THE NEW YEAR OFF RIGHT

As we were planning the content for this, our annual new year's first issue, the one topic we find the most challenging to write about was discussed once again. The challenge is simple. The execution is difficult. That challenge each year is how to motivate you, our readers, to think about aviation safety in the middle of winter. It is even difficult for us to think about something exciting in December, except for maybe a quick trip to Florida or the Bahamas, as we are finalizing this issue. Our problem is winter hasn't officially started yet, and we are thinking and planning for spring with such magazine topics as de-winterizing aircraft, spring training, and reminding our readers of spring time risks such as the beginning of the convective season, etc.

Our challenge though each year is how to address the safety interests and needs of those pilots who don't fly over the winter or who seldom fly over the winter. Pilots who fly frequently over the winter don't have a problem keeping current. Although they may be exposed to winter flying conditions in the northern tier states with the risks that ice and snow can pose, these pilots are operating in the system on a daily or frequent basis.

Our concerns are for those pilots who don't fly as much during the winter months. Then as spring conditions slowly start to spread up from the southern tier states, these are the pilots who want to jump into an aircraft for that first flight of the season. This first flight may be the most dangerous flight of the year for these pilots. So, our challenge is trying to come up with interesting and creative ways to encourage these pilots to schedule refresher training, flight and ground, to bring them up to a safe level to start the new year in preparation for that first flight.

As we have said in the past, now would be a good time to schedule with your local flight school some ground refresher training followed by a few hours in either your aircraft or an aircraft similar to the type you normally fly. This seasonal training could serve as a flight review. Although this training will help start your 2007 flying season off to a good start, I think a more interesting and challenging way to start the new year is by adding a new rating or upgrading your certificate. Not only will the ground and flight training refresh your aeronautical knowledge and skill, but the appropriate knowledge, if required, and practical test will challenge and document your accomplishment.

If you have not thought about your medical certificate, if you need one, now would be a good time to check its expiration date to avoid any last minute scheduling problems if yours is about to expire. Most FAA Flight Standards District Offices' Internet Web sites have a listing of the designated medical examiners in their districts.

If you own an aircraft now would be a good time to review its inspection and equipment status. Like checking your medical, you might need to schedule an inspection with your local aircraft maintenance technician or maintenance facility. You might want to schedule any required inspections a month or two early to avoid the midsummer rush or planned holiday trip.

Finally, as I have said in past articles, one of the best ways to maintain or improve your flight skills while surviving the mid-winter blahs is to do it on a trip. Take a trip to Florida, Arizona, California, or Hawaii and enjoy the sunshine while regaining your flight skills. From gliders soaring over the North Shore of Oahu in Hawaii to seaplanes splashing down in Florida to flying light twins along the Gulf of Mexico, there is something for everyone wanting to get away to improve their flying skills.

For the real hardy souls across the country, they can always learn to fly on skis or how to handle an aircraft in the snow as they try out the newest ski resorts.

From the newest light sport aircraft to the very light jets, there is an aircraft for everyone and the conditions in which to learn safely how to fly it. Have a great 2007.

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